Criteria 3
Research, Innovations and Extension

Key Indicator – 3.1 Resource Mobilization for Research

3.1.1 Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the last five years

IQAC
Committed to Excellence

S.No	Name of the research project	Year
1	Comparative study on water quality parameters in Chengalpattu water bodies using Geographic information system	2021-22
2	Traffic analysis and planning of traffic in Rajiv Gandhi Road, OMR Chennai.	2021-22
3	Flood return period estimation and modelling using Hydrological engineering centre river analysis system	2021-22
4	Developing speed flow relationship model for Maduravoyal Bypass NH32	2021-22
5	Estimation of flood in Adyar river Basin using arc GIS and HEC-HMS by unit hydrograph model	2021-22
6	Facial manipulation detection using UNET	2022-23
7	Real time facial recognition based student proctoring system using KNN algorithm	2022-23
8	Virtual Cloth fitting in 2D	2022-23
9	Personalized recommendation of topics by influence analysis using support vector machine algorithm	2022-23
10	Animal repellent system for smart farming using AI and Deep learning	2022-23
11	Making a Die Design and Analysis of Rubber 3L-Gaskets	2022-23

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)
AICTE Permanent ID Number : 1-5937291

Date: 10.01.2022

Lr No: PERIIT/ RD/012022

To

Global Infrastructure Services and Solutions Pvt Ltd,

No:1, Mannivakkam,

Chennai 600 048.

Dear Sir,

With reference to the discussion on the below mentioned projects during your visit on 08.12.2021, we are sending this budget proposal for approval. The proposal covers all the necessary costs associated with the project.

S. No	Title of the Project	Proposed Amount
1	Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System	Rs. 2,50,000/-
2	Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road. OMR Chennai	Rs. 1,00,000/-
3	Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System	Rs. 1,25,000/-
4	Developing Speed Flow Relationship model for Maduravoyal Bypass NH32	Rs. 75,000/-
5	Estimation of Flood in Adyar River Basin using Arc GIS and HEC- HMS by Unit Hydrograph model	Rs. 1,50,000/-

Thanking you for reviewing the proposal. Please contact us if you have any queries.

Regards,

PRINCIPAL

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI Knowledge Park, Mannivakkam, Chennai - 600 048. Tamilnadu.
Phone No : 044 3505 5400   admin@peri.education   www.peri.education

1

15/01/2022

To

The Principal,
PERI Institute of Technology,
Chennai-600048.

Reference Letter No: PERIIT/ RD/012022

PROPOSAL DETAILS

Dear Sir,

On behalf of Global Infrastructure Services and Solutions Pvt Ltd, I am pleased to inform you that your proposed budget for the projects are accepted. We feel that your budget proposal fits best with our requirements and is fulfilling our expectations.

The projects will commence immediately and have to be completed adhering to the date mentioned below. Payment may be progressive according to the projects execution, and we expect adherence to deadlines from your side. The projects must be completed within the period of six months. Review meeting can be conducted periodically at least once in a month to assess the progress of the projects.

S. No	Title of the Projects	Sanctioned Amount	Tentative date of completion
1	Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System	Rs. 2,10,000/-	
2	Estimation of Flood in Adyar River Basin using Arc GIS and HEC- HMS by Unit Hydrograph model	Rs. 90,000/-	
3	Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System	Rs. 1,05,000/-	10/06/2022
4	Developing Speed Flow Relationship model for Maduravoyal Bypass NH32	Rs. 65,000/-	
5	Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road. OMR Chennai	Rs. 1,10,000/-	

Let us know if any further details are needed in this regard. Thank you for engaging with us.

With Regards,
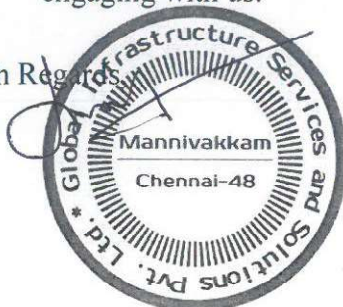
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

2

Date: 27.01.2022

Lr No: PERIIT/ RD/012022/Circular

With reference to the acceptance of the submitted proposal to Global Infrastructure Services and Solutions Pvt Ltd, the principal investigator for each project is decided and mentioned as follows. All are advised to complete the project satisfying the requirements within the deadlines given by the company.

S.No	Title of the Project	Principal Investigator
1	Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System	Mr. B. Magesh
2	Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road, OMR Chennai	Mr. M. Pitchi Rajan
3	Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System	Ms. C. Lavanya
4	Developing Speed Flow Relationship model for Maduravoyal Bypass NH32	Ms. M. Saranya
5	Estimation of Flood in Adyar River Basin using Arc GIS and HEC-HMS by Unit Hydrograph model	Mr. D. Manoj Kumar

PRINCIPAL
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Copy to
Vice principal
HoD - Civil, Faculty members

PERI Knowledge Park, Mannivakkam, Chennai - 600 048. Tamilnadu.
Phone No : 044 6133 3400 admin@peri.education www.peri.education

3

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

CIRCULAR

Date: 21.02.2022

PERIIT/ R&D/ 022022

This is to inform that Review meeting of Consultancy project is scheduled and the details of the same are given below:

Venue	:	Vice Principal Cabin, Beta Block
Date & Time	:	23.02.2022 & 02.00 pm - 03.30 pm

Agenda

- Disussion of Deadlines
- Further course of action
- Project requirements

The following members are invited for the meeting.

1. Dr. R. Palson Kennedy, Principal, PERI Institute of Technology
2. Mr. B. Magesh, Vice Principal, PERI Institute of Technology
3. Mr. Rajesh, Project Coordinator,
4. Mr. M. Pitchi Rajan, Assistant Professor, Department of Civil Engineering, PERIIT
5. Ms. Lavanya, Assistant Professor, Department of Civil Engineering, PERIIT
6. Ms. M. Saranya, Assistant Professor, Department of Civil Engineering, PERIIT
7. Mr. D. Manoj Kumar, Assistant Professor, Department of Civil Engineering, PERIIT

Head of the Department

DEPARTMENT OF CIVIL
PERI INSTITUTE OF TECHNOLOGY
MANNIVAKKAM CHENNAI - 600 048

Copy to:

Global Infrastructure Services
Principal, PERIIT
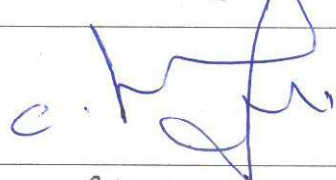R&D Coordinator, PERIIT
Project members

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

4

PERI INSTITUTE OF TECHNOLOGY

MEETING ATTENDANCE

Date: 23.02.2022

S.No.	Name of the Member	Signature
1	Dr. R. Palson Kennedy, Principal, PERIIT	
2	Mr. B. Magesh Vice Principal, PERIIT	
3	Mr. Rajesh, Project Coordinator Global Infrastructure Pvt Ltd	
4	Mr. M. Pitchi Rajan Asst. Prof., Dept. of Civil, PERIIT	
5	Ms. Lavanya Asst. Prof., Dept. of Civil, PERIIT	
6	Ms. M. Saranya Asst. Prof., Dept. of Civil, PERIIT	
7	Mr. D. Manoj Kumar Asst. Prof., Dept. of Civil, PERIIT	

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

5

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

MINUTES OF MEETING

With reference to the consultancy project review meeting held on 23.02.2022 the following points are disussed during the meeting.

Project 1:

Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System

Points Discussed

- Finalizing workflow methodology
- Fixing of Deadlines
- Selection of quality parameters

Project 2:

Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road, OMR Chennai

Points Discussed

- Finalizing workflow methodology
- Fixing of Deadlines
- Data for Traffic study

Project 3:

Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System

Points Discussed

- Finalizing workflow methodology
- Fixing of Deadlines
- Collection of past Flood data

Project 4:

Developing Speed Flow Relationship model for Maduravoyal Bypass NH32

Points Discussed

- Finalizing workflow methodology
- Fixing of Deadlines
- Data for Traffic study

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Project 5:

Estimation of Flood in Adyar River Basin using Arc GIS and HEC-HMS by Unit Hydrograph model

Points Discussed

- Finalizing workflow methodology
- Fixing of Deadlines
- Collection of past Flood data

Head of the Department
Department of Civil Engineering
PERI Institute of Technology,
Mannivakkam, Chennai - 600 048

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

CIRCULAR

Date: 28.03.2022

PERIIT/ R&D/ 032022

This is to inform that Review meeting of Consultancy project is scheduled and the details of the same are given below:

Venue	:	Vice Principal Cabin, Beta Block
Date & Time	:	30.03.2022 & 12.00 pm - 2.00 pm

Agenda

- Completion Status
- Further course of action
- Project requirements

The following members are invited for the meeting.

1. Dr. R. Palson Kennedy, Principal, PERI Institute of Technology
2. Mr. B. Magesh, Vice Principal, PERI Institute of Technology
3. Mr. Rajesh, Project Coordinator,
4. Mr. M. Pitchi Rajan, Assistant Professor, Department of Civil Engineering, PERIIT
5. Ms. Lavanya, Assistant Professor, Department of Civil Engineering, PERIIT
6. Ms. M. Saranya, Assistant Professor, Department of Civil Engineering, PERIIT
7. Mr. D. Manoj Kumar, Assistant Professor, Department of Civil Engineering, PERIIT

Head of the Department

DEPARTMENT OF CIVIL
PERI INSTITUTE OF TECHNOLOGY
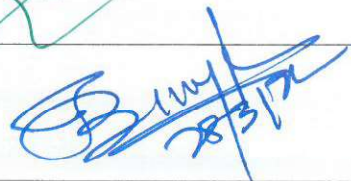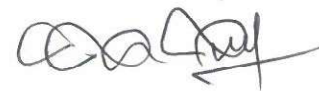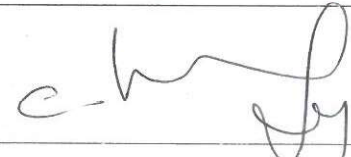MANNIVAKKAM CHENNAI - 600 048

Copy to:

Global Infrastructure Services
Principal, PERIIT
R&D Coordinator, PERIIT
Project members

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

8

PERI INSTITUTE OF TECHNOLOGY

MEETING ATTENDANCE

Date: 28.03.2022

S.No.	Name of the Member	Signature
1	Dr. R. Palson Kennedy, Principal, PERIIT	
2	Mr. B. Magesh Vice Principal, PERIIT	
3	Mr. Rajesh, Project Coordinator Global Infrastructure Pvt Ltd	
4	Mr. M. Pitchi Rajan Asst. Prof., Dept. of Civil, PERIIT	
5	Ms. Lavanya Asst. Prof., Dept. of Civil, PERIIT	
6	Ms. M. Saranya Asst. Prof., Dept. of Civil, PERIIT	
7	Mr. D. Manoj Kumar Asst. Prof., Dept. of Civil, PERIIT	

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

9

MINUTES OF MEETING

With reference to the consultancy project review meeting held on 28.03.2022 the following points are disussed during the meeting.

Project 1:

Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System

Points Discussed

- Progress of the Project
- Plan for further course of action
- Collection of Samples

Project 2:

Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road, OMR Chennai

Points Discussed

- Progress of the Project
- Plan for further course of action
- Collection of Traffic Data

Project 3:

Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System

Points Discussed

- Progress of the Project
- Plan for further course of action
- Flood Data Analysis

Project 4:

Developing Speed Flow Relationship model for Maduravoyal Bypass NH32

Points Discussed

- Progress of the Project
- Plan for further course of action
- Collection of Traffic Data

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Project 5:

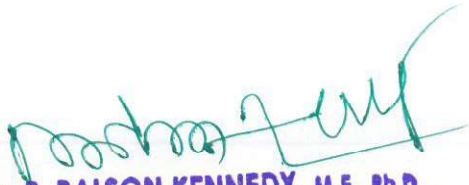Estimation of Flood in Adyar River Basin using Arc GIS and HEC-HMS by Unit Hydrograph model

Points Discussed

- Progress of the Project
- Plan for further course of action
- Flood Data Analysis

Head of the Department
Department of Civil Engineering
PERI Institute of Technology.
Mannivakkam, Chennai - 600 048

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

CIRCULAR

Date: 12.04.2022

PERIIT/ R&D/ 042022

This is to inform that Review meeting of Consultancy project is scheduled and the details of the same are given below:

Venue	:	Vice Principal Cabin, Beta Block
Date & Time	:	15.04.2022 & 10.00 am - 12.00 pm

Agenda

- Completion Status
- Further course of action
- Project requirements

The following members are invited for the meeting.

1. Dr. R. Palson Kennedy, Principal, PERI Institute of Technology
2. Mr. B. Magesh, Vice Principal, PERI Institute of Technology
3. Mr. Rajesh, Project Coordinator,
4. Mr. M. Pitchi Rajan, Assistant Professor, Department of Civil Engineering, PERIIT
5. Ms. Lavanya, Assistant Professor, Department of Civil Engineering, PERIIT
6. Ms. M. Saranya, Assistant Professor, Department of Civil Engineering, PERIIT
7. Mr. D. Manoj Kumar, Assistant Professor, Department of Civil Engineering, PERIIT

Head of the Department

DEPARTMENT OF CIVIL
PERI INSTITUTE OF TECHNOLOGY
MANNIVAKKAM CHENNAI - 600 048

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Global Infrastructure Services
Principal, PERIIT
R&D Coordinator, PERIIT
Project members

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

12

PERI INSTITUTE OF TECHNOLOGY

MEETING ATTENDANCE

Date: 15.04.2022

S.No.	Name of the Member	Signature
1	Dr. R. Palson Kennedy, Principal, PERIIT	
2	Mr. B. Magesh Vice Principal, PERIIT	
3	Mr. Rajesh, Project Coordinator Global Infrastructure Pvt Ltd	
4	Mr. M. Pitchi Rajan Asst. Prof., Dept. of Civil, PERIIT	
5	Ms. Lavanya Asst. Prof., Dept. of Civil, PERIIT	
6	Ms. M. Saranya Asst. Prof., Dept. of Civil, PERIIT	
7	Mr. D. Manoj Kumar Asst. Prof., Dept. of Civil, PERIIT	

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

13

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

MINUTES OF MEETING

With reference to the consultancy project review meeting held on 15.04.2022 the following points are disussed during the meeting.

Project 1:

Comparative study on water quality parameters in Chengalpattu water bodies using Geographic Information System

Points Discussed

- Progress of the Project
- Plan for further course of action
- Laboratory Analysis Report

Project 2:

Traffic Analysis and Planning of Traffic in Rajiv Gandhi Road, OMR Chennai

Points Discussed

- Progress of the Project
- Plan for further course of action
- Mathematical Analysis Report

Project 3:

Flood Return Period Estimation and Modelling using Hydrological Engineering Centre River Analysis System

Points Discussed

- Progress of the Project
- Plan for further course of action
- Software Analysis Report

Project 4:

Developing Speed Flow Relationship model for Maduravoyal Bypass NH32

Points Discussed

- Progress of the Project
- Plan for further course of action
- Mathematical Analysis Report

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Project 5:

Estimation of Flood in Adyar River Basin using Arc GIS and HEC-HMS by Unit Hydrograph model

Points Discussed

- Progress of the Project
- Plan for further course of action
- Software Analysis Report

Head of the Department
Department of Civil Engineering
PERI Institute of Technology,
Mannivakkam, Chennai - 600 048

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Date: 03.06.2022

Letter no: PERIIT/RD/062022

To

Global Infrastructure Services and Solutions Pvt Ltd,
No:1, Mannivakkam,
Chennai – 600 048.

Dear sir,

We are pleased to inform that we have completed the project. We have followed the timelines that were mutually agreed on between your company and our institution.

We have tried to give our best to provide you quality output, with an attempt to satisfy your requirements to the fullest. Kindly intimate us if any change or update need to be done in the completed work. We also provide periodic follow-up on the project for a period of 6 months.

All payments pertaining to the project can be made in accordance with the said agreement to the PERI Institute of Technology account, once the completed work is satisfied.

We wish to thank you for providing this opportunity. We will be looking forward to work with you in the future projects.

Thanking you

Regards

PRINCIPAL
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI Knowledge Park, Mannivakkam, Chennai - 600 048. Tamilnadu.
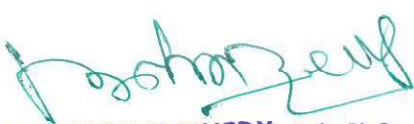Phone No : 044 6133 3400   admin@peri.education   www.peri.education

16

Comparative study on water quality parameters in Chengalpattu water bodies using Geographic information system

OBJECTIVES:

- To study the available ground water resources and to find out the physiochemical parameters
- To compare the obtained results with BIS and WHO water quality standards.
- To evaluate the ground water resources using GIS analysis.

PROJECT FINDINGS:

Ground water sampling location were selected by conducting survey. The water samples are collected,fromeachwellpointsduringpostmonsoonseasonperiod.Watersamplesarecollectedincontainers and preceding to collection as a part of the quality control measures, all the bottles were wash with non-ionic detergent and rinse with de-ionized water prior to the usage. The bottles were labelled according to the sample spot point, whilst all the samples were preserved at 4°C and transported to the laboratory. The sampling results be studied and results were obtained.

- The values the pH was in the range 6.0-7.99.
- Total dissolved salt was in the range of 694- 1044mg/L in rainy season and 722-1100mg/L in summer.
- TDS and Turbidity was within permissible limit.
- Hardness was found to be ranged from 480mg/L to 280mg/L
- Chloride contents varied from 490mg/Lto 105mg/litre

Table1ParametersvaluesforWell 1to3

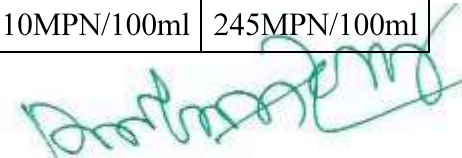| Parameters	Protocol	Well-1	Well-2	Well-3
PH Value	IS3025Part 11 (2009)	6.70	7.56	6.87
Total Hardness AsCaCO3	IS3025Part 21 (2009)	286 mg/l	320 mg/l	688 mg/l
Iron as Fe	IS3025Part 53 (2009)	0.06 mg/l	1.75 mg/l	0.32 mg/l
Total dissolved solids	IS3025Part 16 (2009)	694 mg/l	870 mg/l	966 mg/l
Total plate count	IS1622-1981(Reaff)(2009)	310cfu/ml	323cfu/ml	766cfu/ml
E.coli	IS1622-1981(Reaff)(2009)	Absent/100ml	Absent/100ml	Absent/100ml
Total coli form	IS1622-1981(Reaff)(2009)	Present: 70MPN/100ml	Present: 110MPN/100ml	Present: 245MPN/100ml

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Table2ParametersvaluesforWell 4to6

Parameters	Protocol	Well-4	Well-5	Well-6
PH Value	IS3025Part 11 (2009)	6.43	6.68	6.66
Total Hardness As CaCO3	IS3025Part 21 (2009)	344 mg/l	416 mg/l	448 mg/l
Iron as Fe	IS3025Part 53 (2009)	0.07 mg/l	0.29 mg/l	0.13 mg/l
Total dissolved solids	IS3025Part 16 (2009)	768 mg/l	854 mg/l	846 mg/l
Total plate count	IS1622 1981(Reaff)(2009)	400cfu/ml	450cfu/ml	800cfu/ml
E.coli	IS 1622 1981(Reaff)(2009)	Absent /100ml	Absent /100ml	Absent /100ml
Total coli form	IS 1622 1981(Reaff)(2009)	Present: 220MPN /100ml	Present: 170MPN /100ml	Present: 350MPN /100ml

Table3ParametersvaluesforWell7to8

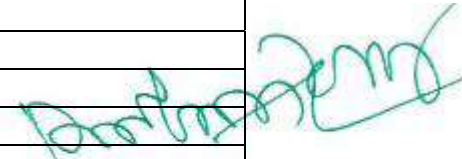| Parameters	Protocol	Well-7	Well-8
PH Value	IS3025Part 11 (2009)	6.66	7.06
Total Hardness as Caco3	IS3025Part 21 (2009)	448 mg/l	360 mg/l
Iron as Fe	IS3025Part 53 (2009)	0.13 mg/l	0.13 mg/l
Total dissolved solids	IS3025Part 16 (2009)	846 mg/l	1044mg/l
Total plate count	IS1622-1981(Reaff) (2009)	800cfu/ml	600cfu/ml
E.coli	IS1622-1981(Reaff) (2009)	Absent/100ml	Absent/100ml
Total coli form	IS16221981(Reaff) (2009)	Present: 350MPN/100ml	Present: 280MPN/100ml

Table4PumpingTestAnalysis

WELL	LAT	LONG	DUR	SWL	DWL	RWL	Q	Q	T	Qrec
SP1	13.068°	80.145°	30	1.00	1.04	1.03	2.00	6.90	354	2.0
SP2	13.031°	80.169°	30	1.22	2.02	1.32	0.57	0.093	11	0.6
SP3	13.072°	80.342°	30	0.80	1.54	0.93	0.62	0.082	19	0.65
SP4	13.122°	80.231°	30	0.90	1.68	0.95	0.135	0.005	0.39	0.1
SP5	13.087°	80.156°	30	1.15	2.12	1.23	1.45	1.58	142	1.5
SP6	13.054°	80.243°	30	0.93	1.76	1.08	0.32	0.053	7.9	0.3
SP7	13.117°	80.298°	30	0.78	1.45	0.87	1.58	0.497	12.5	1.6

Pumping Test Draw down

Table5PumpingTestDrawdownData

Time	Depth of water (from the casing n ft)	Comments
10.20	7.5	Pumping hasn't started
10.21	7.5	
10.22	7.5	
10.23	7.5	
10.24	7.5	
10.25	7.5	
10.26	7.5	Pumpingstarted@150lpm
10.27	7.5	
10.28	8.1	
10.29	8.1	
10.30	8.9	
10.31	8.9	
10.32	9.8	
10.33	9.8	
10.34	10.7	
10.35	10.7	
10.36	11.6	
10.37	11.6	
10.38	12.5	
10.39	12.5	
10.40	13.4	
10.41	13.4	
10.42	14.3	
10.43	14.3	
10.44	15.5	
10.45	15.5	
10.46	16.9	

10.47	16.9	
10.48	17.5	
10.49	17.5	
10.50	18.6	
10.51	18.6	
10.52	19.7	
10.53	19.7	
10.56	19.8	Pump has been turned off

The spatial variation maps for ground water quality:
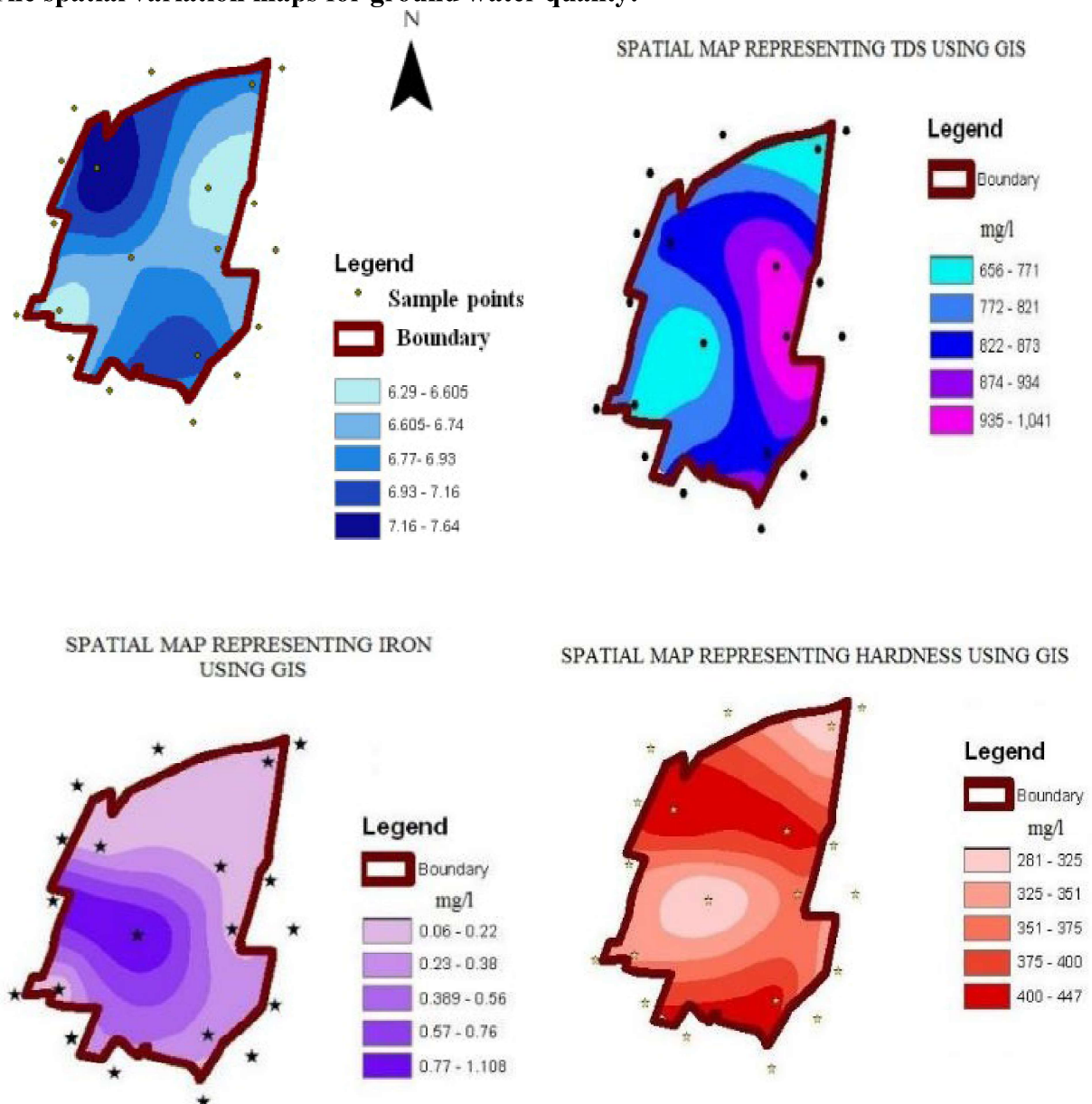
Figure 1 The spatial variation maps for ground water quality
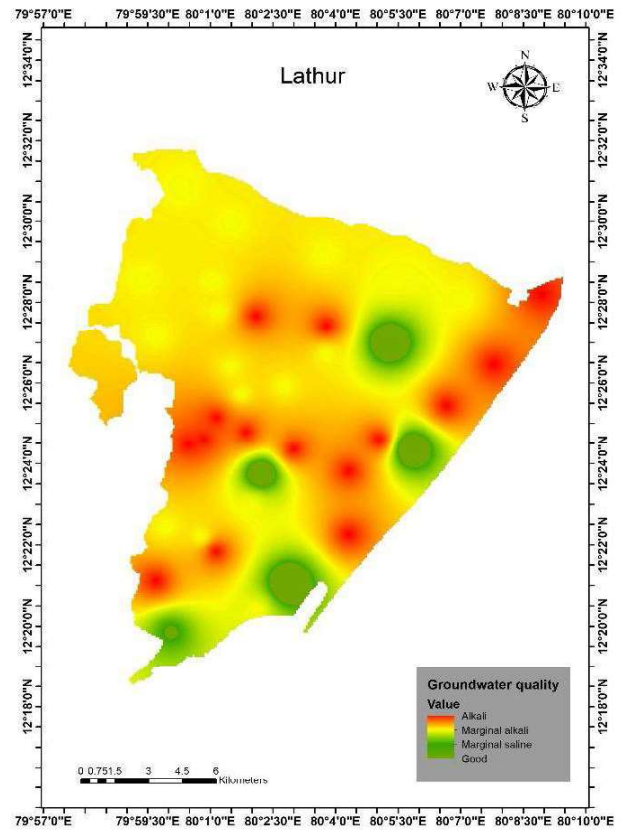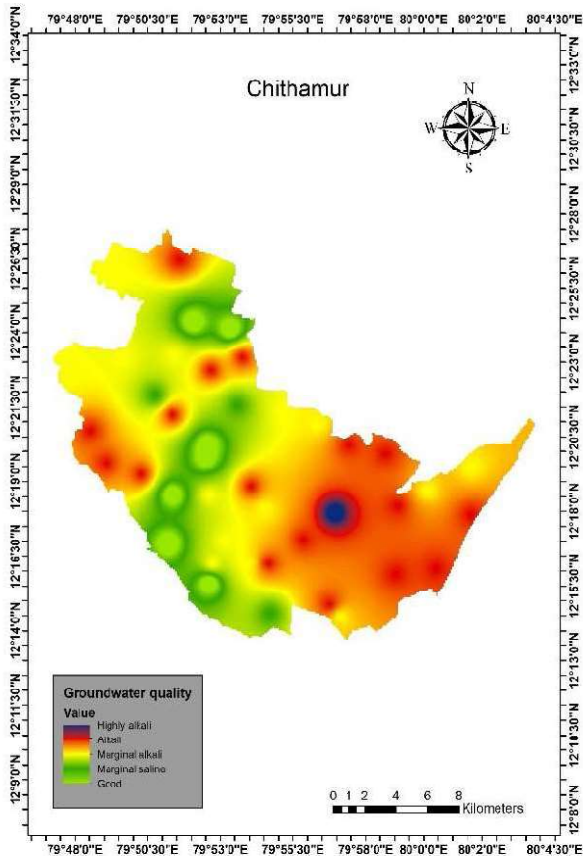
Figure 2 Spatial distribution of different quality parameters of groundwater in coastal blocks ofChengalpattu district
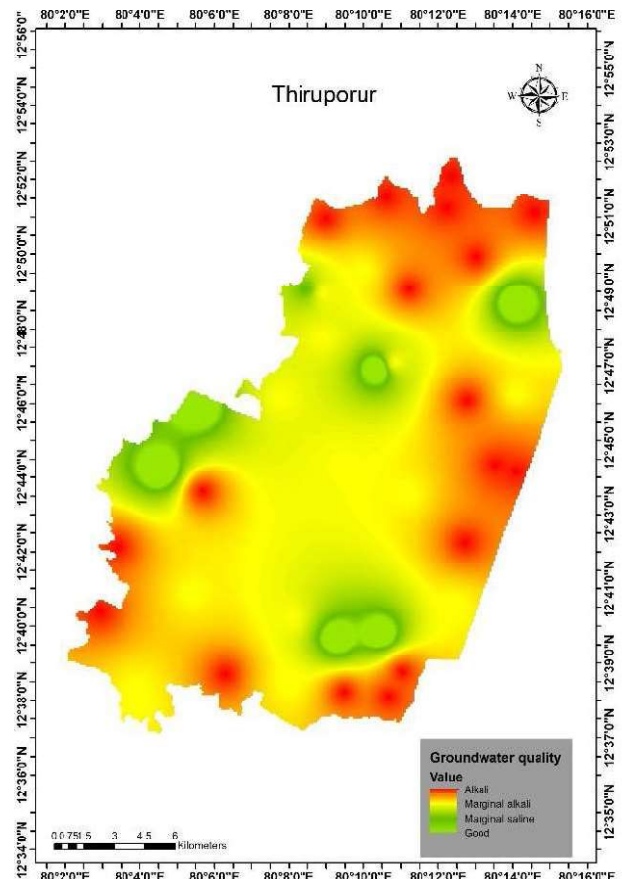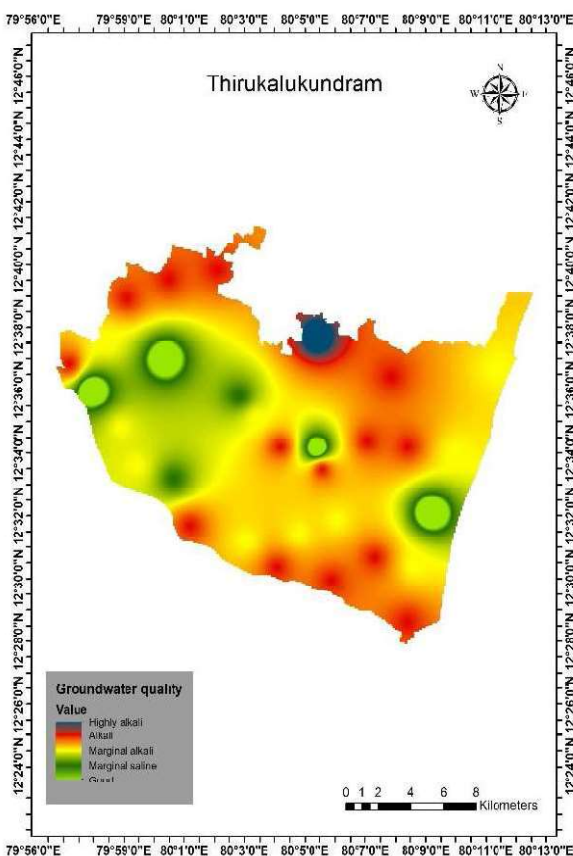
Figure 2 Spatial distribution of different quality parameters of groundwater in coastal blocks of Chengalpattu district

Outcome:

The project findings included data on various water quality parameters such as pH, total dissolved salts, hardness, iron content, total plate count, E. coli presence, and total coliform count in different wells in Chengalpattu. The study compared the obtained results with the Bureau of Indian Standards (BIS) and World Health Organization (WHO) water quality standards. Additionally, spatial distribution maps were created to visualize the groundwater quality parameters in the coastal blocks of Chengalpattu district. The study provides valuable insights into the water quality status in the region and can be used for further analysis and decision-making regarding water resource management and public health.

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**COMPARATIVE STUDY ON WATER QUALITY PARAMETERS IN CHENGALPATTU WATER BODIES USING GEOGRAPHIC INFORMATION SYSTEM**

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of personal recommendation of topics by influence analysis within the allocated budget. This split-up covers personnel salaries, necessary equipment and software, field expenses, data analysis, and a contingency fund for unforeseen costs.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Professional Cost (Expert and Technician)	70,000
2	Equipment and Software	35,000
3	Survey and transportation expenditure	60,000
4	Statistical data analysis	15,000
5	Documentation and Reporting (Preparation of user guides, technical documentation, and research papers)	10,000
6	Contingency	20,000
	Total	**2,10,000**

Traffic analysis and planning of traffic in Rajiv Gandhi Road, OMR Chennai

Objectives

1. Analyzing the traffic flow patterns at different hotspots along Rajiv Gandhi Road to identify peak hours of congestion.

2. Evaluating the distribution of various types of vehicles (cars, autos, buses, trucks, motorcycles, scooters) during different time intervals.

3. Assessing the impact of traffic volume on road capacity and level of service at key junctions.

4. Proposing recommendations for traffic management strategies to improve traffic flow and reduce congestion at identified hotspots.

5. Providing insights for urban planners and policymakers to make informed decisions regarding infrastructure development and traffic planning along Rajiv Gandhi Road.

Table 1 Traffic Study at Hotspot 1 – Madyakailash Junction, OMR

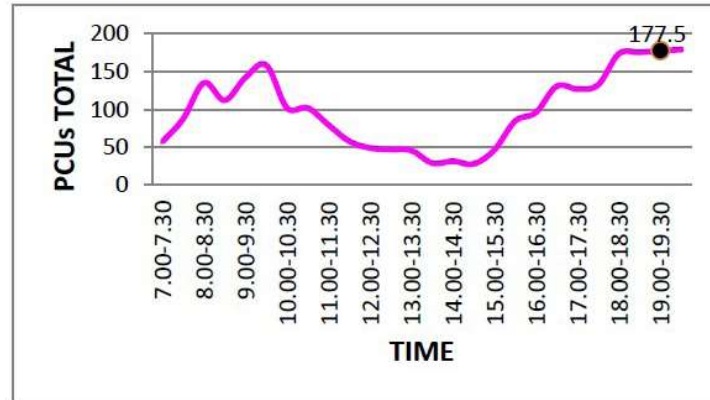| Time(hrs)	Car,Auto, 3Wheelers	Bus	Truck	Motor-Cycles & Scooters	Total	PCUs Total
7.00-7.30	12	6	4	30	52	57
7.30-8.00	25	11	2	47	85	87.5
8.00-8.30	55	17	3	40	115	135
8.30-9.00	65	6	3	40	114	112
9.00-9.30	75	7	7	50	139	142
9.30-10.00	90	5	2	95	192	158.5
10.00- 10.30	53	3	5	50	111	102
10.30- 11.00	58	5	3	40	106	102
11.00- 11.30	45	3	3	33	84	79.5
11.30- 12.00	35	2	1	28	66	58
12.00- 12.30	29	1	2	22	54	49
12.30- 13.00	25	0	4	20	49	47
13.00- 13.30	22	2	3	17	44	45.5
13.30- 14.00	20	0	0	18	38	29
14.00- 14.30	18	1	1	15	35	31.5
14.30- 15.00	15	0	1	20	36	28
15.00- 15.30	21	1	0	45	67	46.5
15.30- 16.00	35	5	1	63	104	84.5
16.00- 16.30	50	3	3	56	112	96
16.30- 17.00	65	7	4	65	141	130.5
17.00- 17.30	70	5	2	72	149	127
17.30- 18.00	70	3	2	95	170	132.5
18.00- 18.30	80	5	5	127	217	173.5
18.30- 19.00	85	3	3	145	236	175
19.00- 19.30	90	2	2	151	245	177.5
19.30- 20.00	95	2	1	150	248	179

24

Figure 1 Traffic Flow graph at Hotspot 1 – Madyakailash Junction, OMR

Table 2 Traffic Study at Hotspot 2 – SRP Tools Junction

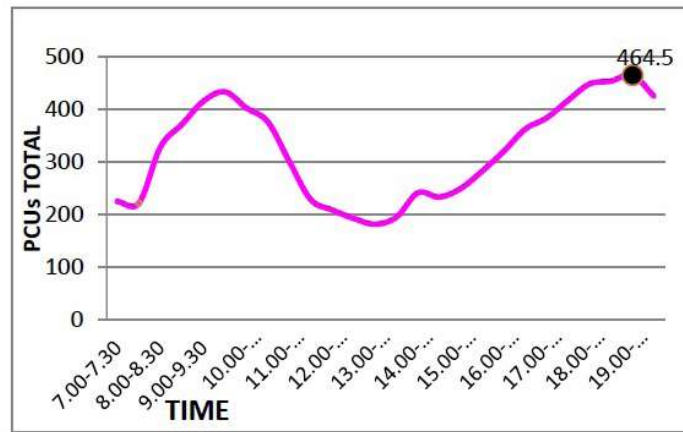| Time(hrs)	Car,Auto, 3 Wheelers	Bus	Truck	Motor-Cycles & Scooters	Total	PCUs Total
7.00- 7.30	117	10	5	125	257	224.5
7.30- 8.00	122	7	7	115	251	221.5
8.00- 8.30	191	12	7	160	370	328
8.30- 9.00	237	7	11	160	415	371
9.00- 9.30	275	5	5	220	505	415
9.30-10.00	300	4	7	200	511	433
10.00-10.30	280	5	3	197	485	402.5
10.30-11.00	252	8	5	170	435	376
11.00-11.30	200	3	4	160	367	301
11.30-12.00	135	4	3	145	287	228.5
12.00-12.30	121	2	5	133	261	208.5
12.30-13.00	112	3	3	125	243	192.5
13.00-13.30	100	3	5	115	223	181.5
13.30-14.00	136	1	2	100	239	195
14.00-14.30	181	2	3	90	276	241
14.30-15.00	166	4	5	80	255	233
15.00-15.30	185	2	7	75	269	249.5
15.30-16.00	204	7	3	97	311	282.5
16.00-16.30	230	2	8	120	360	320
16.30-17.00	250	9	5	140	404	362
17.00-17.30	265	11	1	165	442	383.5
17.30-18.00	300	7	2	180	489	417
18.00-18.30	315	7	4	200	526	448
18.30-19.00	325	5	2	215	547	453.5
19.00-19.30	348	4	0	209	561	464.5
19.30-20.00	308	5	3	185	501	424.5

Figure 2 Traffic Flow graph at Hotspot 2 – SRP Tools Junction

Table 3 Traffic Study at Hotspot 3 –Thuraipakkam Junction

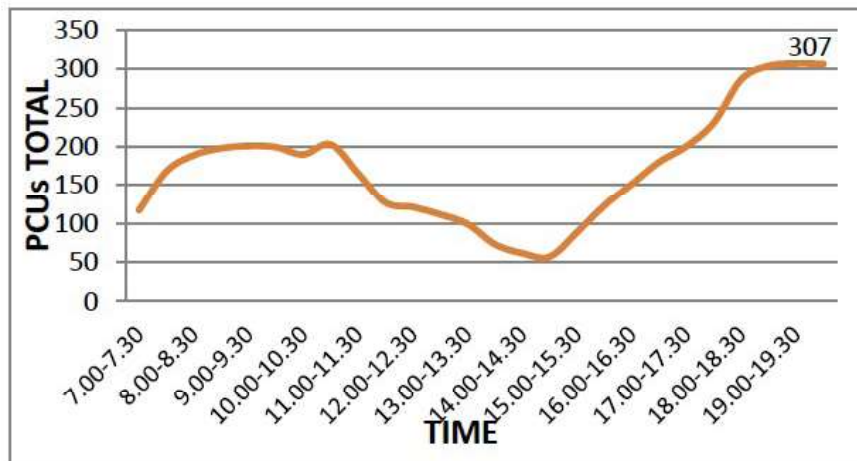| Time	Car,Auto, 3 Wheelers	Bus	Truck	Motor-Cycles & Scooters	Total	PCUs Total
7.00- 7.30	63	7	1	60	131	117
7.30- 8.00	75	18	3	60	156	168
8.00- 8.30	93	12	5	90	200	189
8.30- 9.00	104	13	5	80	202	198
9.00- 9.30	100	12	5	100	217	201
9.30-10.00	127	11	4	55	197	199.5
10.00-10.30	101	8	5	100	214	190
10.30-11.00	110	12	4	90	216	203
11.00-11.30	92	10	2	75	179	165.5
11.30-12.00	70	8	1	60	139	127
12.00-12.30	72	5	3	50	130	121
12.30-13.00	60	5	5	43	113	111.5
13.00-13.30	62	4	2	38	106	99
13.30-14.00	45	3	1	32	81	73
14.00-14.30	40	2	1	25	68	65.1
14.30-15.00	35	2	2	20	59	57
15.00-15.30	53	4	2	35	94	885
15.30-16.00	62	7	5	50	124	123
16.00-16.30	75	5	8	75	163	151.5
16.30-17.00	90	12	3	90	195	180
17.00-17.30	95	13	5	103	216	200.5
17.30-18.00	121	9	7	124	261	231
18.00-18.30	147	12	9	153	321	286.5
18.30-19.00	152	16	7	166	341	304
19.00-19.30	177	7	7	176	367	307
19.30-20.00	183	6	6	175	370	306.5

Figure 3 Traffic Flow graph at Hotspot 3 –Thuraipakkam Junction

Table 4 Traffic Study at Hotspot 4 – Sholinganallur Junction

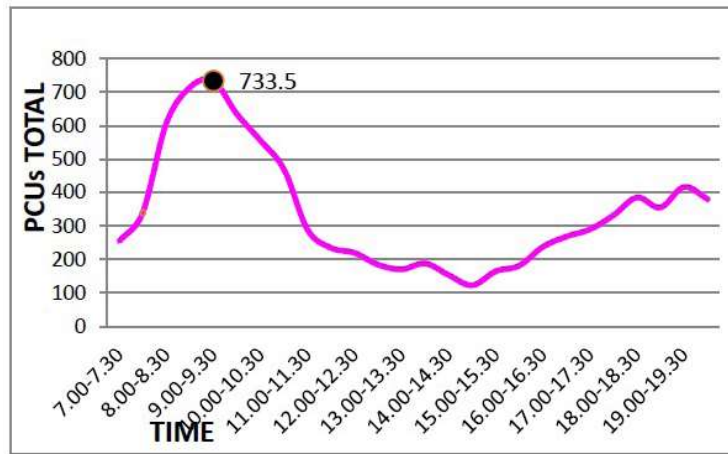| Time	Car,Auto, 3 Wheelers	Bus	Truck	Motor-Cycles & Scooters	Total	PCUs Total
7.00- 7.30	75	28	14	105	222	253.5
7.30- 8.00	120	33	17	137	307	338.5
8.00- 8.30	280	29	23	340	672	606
8.30- 9.00	265	43	43	381	732	713.5
9.00- 9.30	375	45	10	387	817	733.5
9.30-10.00	303	37	11	376	727	635
10.00-10.30	273	31	14	297	615	556.5
10.30-11.00	233	28	6	270	537	470
11.00-11.30	140	17	6	160	323	289
11.30-12.00	135	5	4	145	289	234.5
12.00-12.30	120	6	5	133	264	219.5
12.30-13.00	102	7	3	105	217	184.5
13.00-13.30	100	4	5	87	196	170.5
13.30-14.00	115	7	2	92	216	188
14.00-14.30	100	4	3	65	172	153.5
14.30-15.00	75	3	3	60	141	123
15.00-15.30	85	8	6	75	174	164.5
15.30-16.00	112	3	4	97	216	181.5
16.00-16.30	120	12	7	120	259	237
16.30-17.00	150	14	2	140	306	268
17.00-17.30	165	13	1	165	344	289.5
17.30-18.00	187	17	1	180	385	331
18.00-18.30	215	16	2	230	463	384
18.30-19.00	203	6	7	225	441	354.5
19.00-19.30	218	10	6	299	533	415.5
19.30-20.00	200	9	5	275	489	379.5

Figure 4 Traffic Flow graph at Hotspot 4 – Sholinganallur Junction

Table 5 Traffic Study at Hotspot 5 –Kelambakkam Junction

| Time	ar, Auto,	Bus	Truck	Motor-Cycles & Scooters	Total	PCUs Total
7.00- 7.30	25	8	1	39	73	71.5
7.30- 8.00	37	10	3	50	100	101
8.00- 8.30	43	12	5	56	116	122
8.30- 9.00	65	11	5	60	141	143
9.00- 9.30	69	9	5	71	154	146.5
9.30-10.00	63	10	4	69	146	139.5
10.00-10.30	71	14	5	87	177	171.5
10.30-11.00	81	12	4	19	116	174
11.00-11.30	61	11	2	75	149	137.5
11.30-12.00	36	8	1	60	105	93
12.00-12.30	41	5	3	50	99	90
12.30-13.00	43	5	5	43	96	94.5
13.00-13.30	24	4	2	38	68	61
13.30-14.00	25	3	1	32	61	53
14.00-14.30	31	2	1	25	59	52.5
14.30-15.00	35	2	2	30	69	57
15.00-15.30	43	4	2	35	84	78.5
15.30-16.00	32	7	5	50	94	93
16.00-16.30	65	5	8	75	153	141.5
16.30-17.00	82	12	3	90	187	172
17.00-17.30	95	13	5	103	216	200.5
17.30-18.00	80	8	7	122	217	186
18.00-18.30	101	10	9	151	271	233.5
18.30-19.00	90	9	7	161	267	218.5
19.00-19.30	85	11	7	172	275	225
19.30-20.00	83	5	6	171	265	201.5
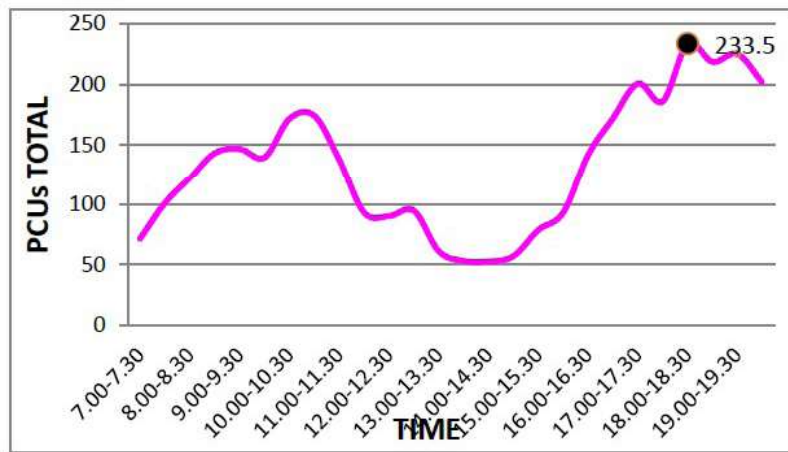
Figure 5 Traffic Flow graph at Hotspot 5 –KelambakkamJunction

Outcomes:

1. Identification of peak traffic hours and congestion patterns at specific hotspots along Rajiv Gandhi Road.

2. Understanding the distribution of different types of vehicles and their contribution to overall traffic flow during various time intervals.

3. Assessment of the impact of traffic volume on road capacity and level of service at key junctions, highlighting areas of improvement.

4. Recommendations for implementing traffic management strategies such as signal optimization, lane management, and infrastructure upgrades to alleviate congestion.

5. Insights for stakeholders, urban planners, and policymakers to make informed decisions on future infrastructure development and traffic planning initiatives along Rajiv Gandhi Road to enhance overall traffic efficiency and safety.

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TRAFFIC ANALYSIS AND PLANNING OF TRAFFIC IN RAJIV GANDHI ROAD, OMR CHENNAI.

This utilization breakup outlines the allocation of funds for a facial manipulation detection project, totaling Rs.90,000. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Analyst)	25,000
2	Equipment and Software Development (GIS and traffic data collection)	20,000
3	Field survey and transportation	10.000
4	Data analysis and Validation	15,000
5	Documentation and Reporting (Writing project reports, documentation, and research papers)	10,000
6	Contingency	10,000
	Total	**90,000**

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Estimating flood return periods and modeling using the Hydrologic Engineering Center

Objective

To generate a model to analyze the watershed response and to identify areas of inundation for possible future interventions. Remotely-sensed and physically evaluated data were processed using ArcMap, HEC Geo HMS, ArcHydro, HEC HMS, HEC Geo RAS and HEC RAS.

Introduction

HEC-RAS is a widely used software developed by the US Army Corps of Engineers for hydraulic modeling of rivers and waterways. It integrates hydrologic and hydraulic computations to simulate flow behavior and predict water levels during flooding events.
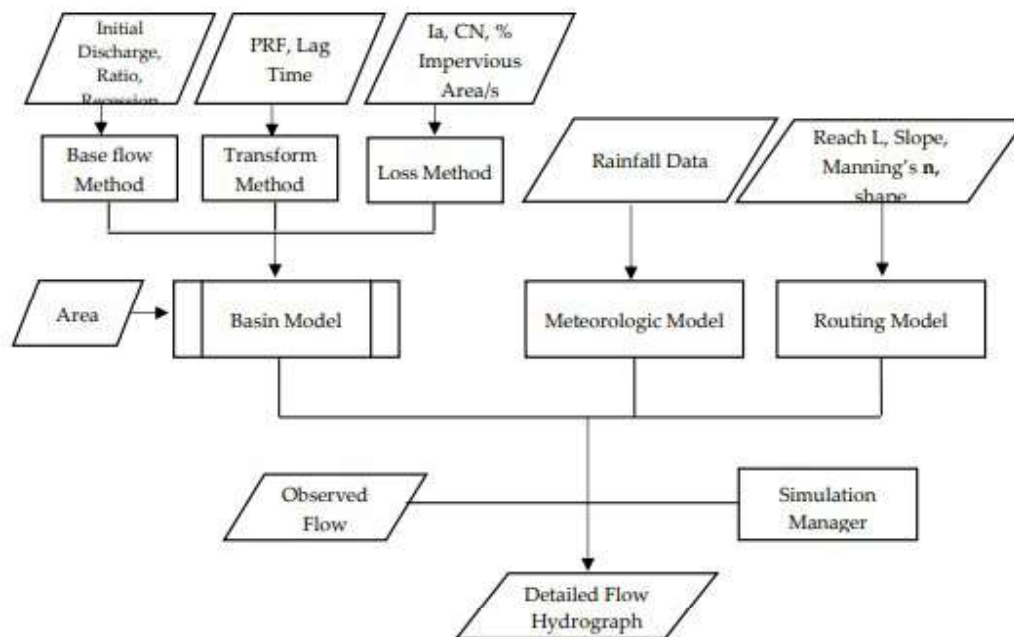

Figure: Hydrologic modeling using HEC- HMS

Data Requirements

Before beginning the flood return period estimation and modeling process, gather the necessary data:

Topographic Data: Digital Elevation Models (DEM) or surveyed cross-sections of the river channel and floodplain.

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Hydrologic Data: Historical flow data (discharge data) for the river, which is crucial for determining flood frequencies and return periods.

Geometric Data: Bridge and culvert geometries, channel roughness coefficients, and other relevant structural details.

Estimation of Flood Return Period

To estimate the flood return period:

Frequency Analysis: Use statistical methods (e.g., Log-Pearson Type III distribution) to analyze historical flow data and estimate the discharge associated with different return periods (e.g., 10-year, 50-year, 100-year floods).

Return Period Calculation: Determine the flow rates corresponding to various return periods (e.g., Q10, Q50, Q100).

HEC-RAS Modeling Process

Model Setup: Create a new project in HEC-RAS. Input the geometric and hydraulic data collected earlier.

Boundary Conditions: Define upstream and downstream boundary conditions, including flow rates and water surface elevations during flood events.

Simulation: Run the HEC-RAS model to simulate flow conditions under different flood scenarios (e.g., 10-year flood, 50-year flood).
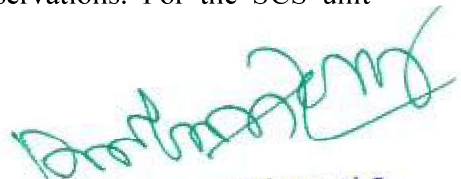
Results Interpretation

Water Surface Profiles: Analyze water surface profiles generated by HEC-RAS to understand how floodwaters propagate through the river system.

Floodplain Mapping: Generate floodplain maps to identify areas prone to inundation under different flood return periods.

Output Analysis: Review output files and reports from HEC-RAS to validate model results against observed data and theoretical expectations.

Calibration involved the comparison of initial simulation outputs to an observed storm event. This required the optimization of initial input parameters to fit with the flow hydrograph of a storm event. • Estimation of Initial Input Parameters for the Models The input parameters for the base flow method were estimated based on current conditions. Initial discharge, ratio-to-peak, and the recession constant were determined based on actual observations. For the SCS unit

Hydrograph procedures, Peak Run off factor was estimated by evaluating the terrain based on ocular inspection and analysis of a DEM for the area in a GIS platform.

Sub watersheds	Description	PRF
820	Mountainous	550
830	Rolling, Hilly	500
930	Riceland, mixed	250
940	Riceland	150

Initial input parameters were used to model the watershed response using tropical Storm Ambo data. The peak flow and the time of peak was considered in the study as it was identified also in similar studies as an important aspect in flood modeling and disaster mitigation. The results of the initial simulation resulted to an NSE of 0.051, except for the more stringent measure using the Root Mean Square Error (RMSE) with a value of 1.5 cu.m/sec which is less than satisfactory. The computed runoff has a volume of 139.34 mm is compared to the observed volume of 87.07 mm resulting to a volume residual of 52 mm. Graphical analysis shows that the time of peak flow is the same for both observed and modelled events. It occurred six (6) hours after the peak rainfall. This indicates a good relationship between the model and the observed hydrograph.
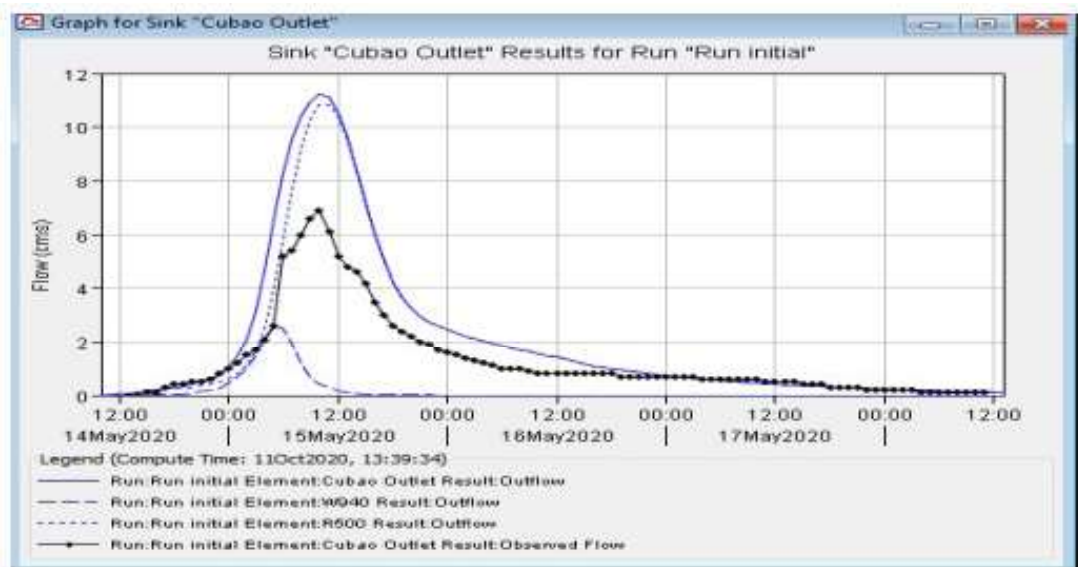

Figure: Hydrographs of initial simulation and observed events during TS Ambo

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Outcome

1. Estimated flood return periods and modeling using HEC-RAS that required a systematic approach integrating hydrological analysis, hydraulic modeling, and data interpretation.
2. Models generated with GIS Aided tools and modeling applications could provide more accurate at near real-time results.
3. The calibrated model provide better results for storms of long duration such as for tropical storms as compared to low intensity, short duration storm occurrences.

FLOOD RETURN PERIOD ESTIMATION AND MODELLING USING HYDROLOGICAL ENGINEERING CENTRE RIVER ANALYSIS SYSTEM

This utilization breakup outlines the allocation of funds for a facial manipulation detection project, totaling Rs.1,05,000. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hydrological Engineer)	25,000
2	Equipment and Software Development (HEC-RAS)	35,000
3	Field survey and transportation	15.000
4	Data analysis and Validation	10,000
5	Documentation and Reporting (Writing project reports, documentation, and research papers)	10,000
6	Contingency	10,000
	Total	**1,05,000**

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Developing speed flow relationship model for Maduravoyal Bypass NH32

Objectives:

1. To provide specific information about the location of the study, including latitude, longitude, road category, type of stretch, length of the stretch, and details of fatal and non-fatal accidents.

2. To present data on traffic direction, peak hours traffic study, and speed flow relationship model during non-peak and peak hours.

3. To classify different types of vehicles observed on the road stretch and their approximate percentages in the traffic flow.

4. To report the findings of the field survey, including signal status, visibility conditions, lighting conditions, road conditions, wrong-way driving scenarios, pedestrian crossing issues, and vehicles parking/stopping problems.

5. To propose short-term solutions based on the field survey findings, such as addressing pedestrian crossing issues, road condition problems, and wrong-way driving concerns.

Introduction

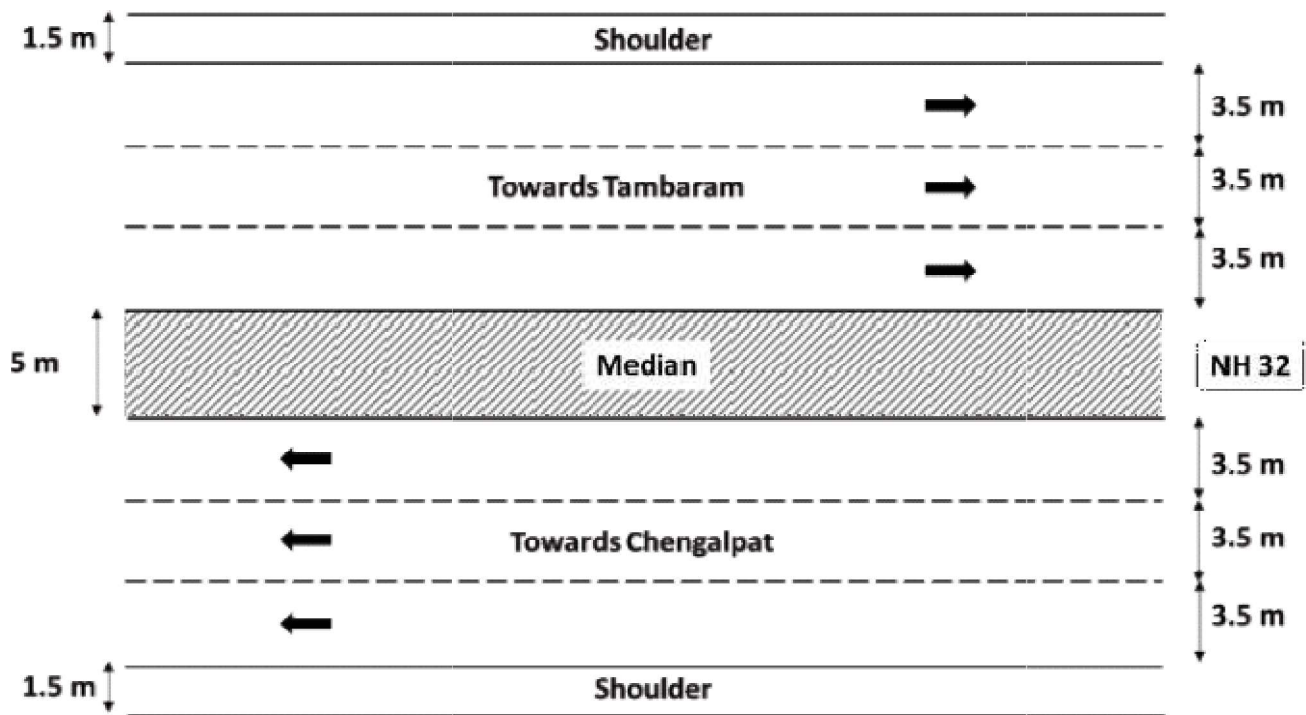|		
Survey Location	:	NH32
Latitude,Longitude	:	12.8984514, 80.0912805
Categoryof Road	:	NationalHighway
Typeof Stretch	:	Straight
LengthofStretch	:	500 m
Start and Endof Stretch	:	62 km – 62.5 km
Fatal accidents	:	01(inlast3years)
Non-Fatal accidents	:	08(inlast3years)

Figure 1 ExistingPlan ofroad stretchin NH32

TRAFFIC STUDY

Table 1 Peak Hours Traffic Study

TrafficDirection	Peak hours	Start Time	EndTime
TowardsChengalpat	Morning	08.00 am	10.30 am
	Evening	07.00 pm	10.00 pm
TowardsTambaram	Morning	06.00 am	09.00 am
	Evening	06.00 pm	08.00 pm

Table 2 Vehicle Classification Survey

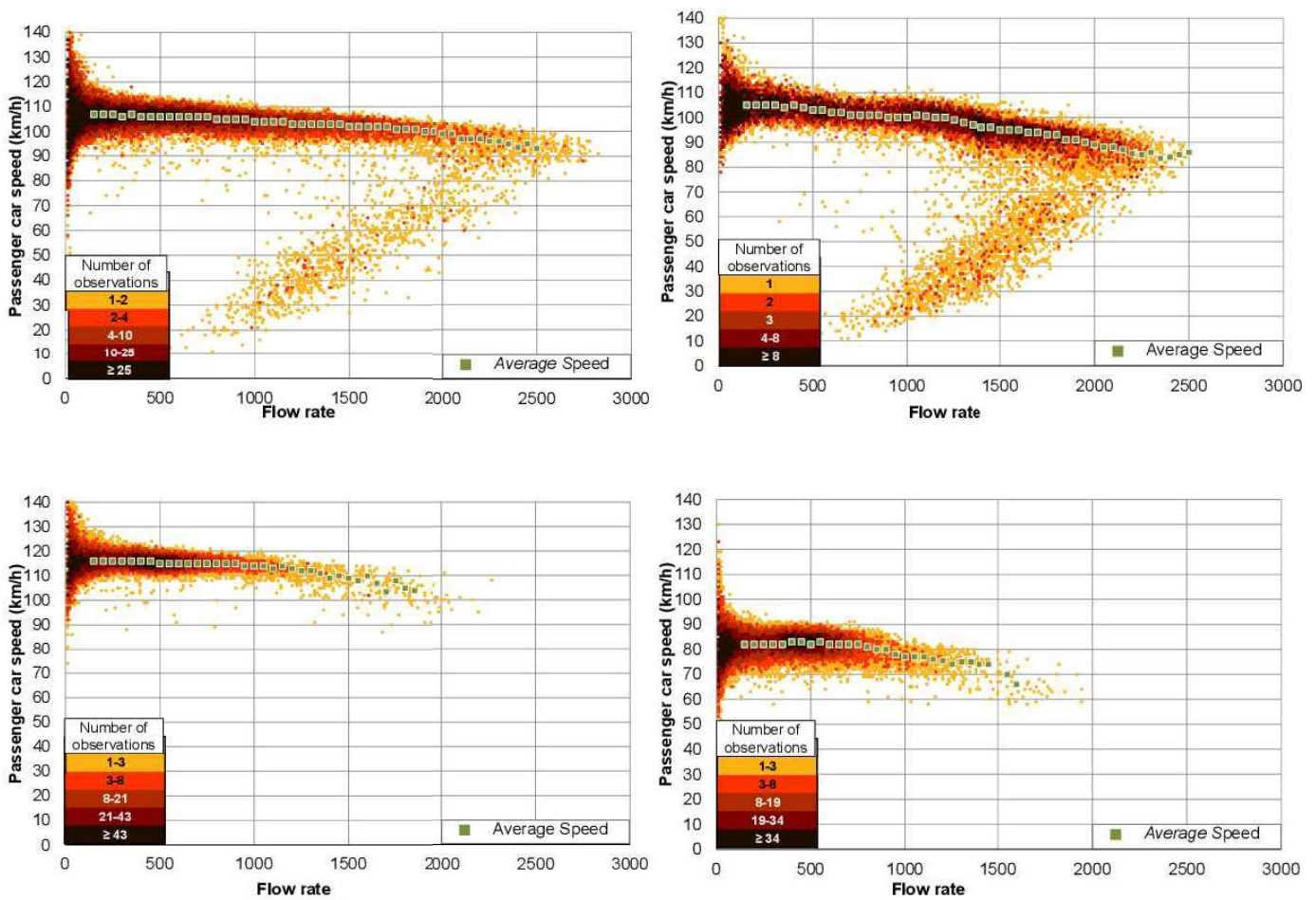| S.No.	TypeofVehicle	Percentage (approx.)
1	ContainerTrucks	5
2	Buses/Lorry/MiniLorry	35
3	Vans	5
4	Cars	30
5	Autos	10
6	2 wheelers	15
7	Tractors/Bullockcarts	0

Figure 2 Speed Flow Relationship at Non Peak hours and Peak hours

FIELD SURVEY FINDINGS

Table 3 Finding of Field Survey

S.No.	SurveyCriteria	Comments
1	Signal status at the hotspot	Flashing yellow blinkers are available as awarning to slow down the vehicles and inworking condition
2	Visibility condition at the hotspot	Road stretch is straight and all sight distances (Stopping Sight Distance, Overtaking Sight Distance)available
3	Lighting condition at the hotspot	Good lighting available at the stretch

38

4	Road condition at the hotspot	Distress in pavement such as Rutting, Ravelling and Stripping found at the stretch
5	Wrong way driving at the hotspot	Wrong way driving found to be an frequent scenario in the traffic towards Chengalpet due to the officesin that side of the road
6	Pedestrian crossing at the hotspot	Signalledcrossingnotavailable Pedestriancrossingmarkingnot available Unsafecrossingscenariofoundatthelocation
7	Vehicles Parking/Stopping at the hotspot	Vehicles both two wheelers and more four wheelersoftenparkblockingthelanetraffic (in the side towards Chengalpet).

SHORTTERMENGINEERINGSOLUTION

ForPedestrian crossing issues:

- **Pedestrian crossing marking** on the road can be done at the location for safe crossing.
- **Pedestrian crossing sign board** should be installed at the location.

Roadconditionissues:

- **Overlays** has to bed on eat the location of distress on the road.

Wrongwaydrivingissues:

- **Public awareness** (for the IT company staff) to avoid wrong side driving should be given.

Outcome

1. The study provides insights into traffic patterns, peak hours, and direction of traffic flow towards Chengalpat and Tambaram on NH32.

2. By documenting fatal and non-fatal accidents over the last 3 years, the study highlights the safety concerns on the road stretch and the need for interventions to reduce accidents.

3. The classification of different types of vehicles and their percentages in the traffic flow helps in understanding the composition of vehicles on the road and their impact on traffic congestion.

4. The field survey findings shed light on various aspects such as signal status, visibility conditions, lighting, road conditions, wrong-way driving, pedestrian crossing issues, and vehicles parking/stopping problems, providing a comprehensive assessment of the road stretch.

5. The proposed short-term solutions aim to address immediate issues identified during the field survey, including pedestrian crossing improvements, road condition enhancements, and measures to deter wrong-way driving, contributing to enhancing road safety and traffic efficiency.

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TRAFFIC ANALYSIS AND PLANNING OF TRAFFIC IN RAJIV GANDHI ROAD, OMR CHENNAI.

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of personal recommendation of topics by influence analysis within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Collection of data)	10,000
2	Model Development (Speed Flow)	25,000
3	Model Calibration and Validation	10,000
4	Documentation and Reporting (technical documentation, and research reports)	10,000
5	Contingency	10,000
6		
	Total	**65,000**

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Estimation of flood in Adyar river Basin using arc GIS and HEC-RAS by FlowHydrograph Model
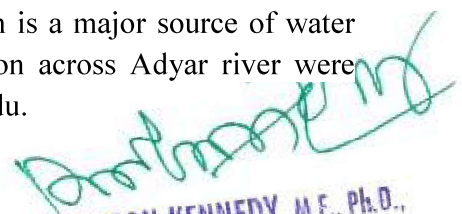
Objectives

1. To explain the process of developing a hydrologic model using HEC-HMS modeling tool and populating influencing rain gauge station data, curve number, and other parameters
2. To analyze the impact of flooding in the study area by determining inundation boundaries, maximum water depth, velocity of flood water, and arrival time.
3. To highlight the potential of advanced hydrologic and hydrodynamic modeling tools in predicting flood inundation and managing floods effectively through suitable mitigation measures

Introduction

The methodology adopted in the project involves identifying the study area, collection of data, and developing a hydrologic model using HEC-HMS modeling tool by populating the influencing rain gauge station data, curve number, and other parameters. The hydrologic model was calibrated and validated with the observed flow data, and the river and corresponding runoff values obtained from the simulation run were used in setting the hydrodynamic model for the study area.

The model was then applied to determine the inundation boundary, maximum water depth, velocity of flood water, and arrival time. Water surface elevation maps were prepared based on the simulation of the hydrodynamic model. Analysis of individual perspectives on natural, social, political, economical, cultural, and technical was carried out to understand transdisciplinary and/or interdisciplinary issues associated with flooding.

- DEM was the primary source for extracting topographic parameters for both hydrologic and hydraulic modeling. The digital surface model was derived from the "ALOS World 3D – 30m.
- Globcover land cover map from European Space Agency was used as an input for the land cover data. The land cover map was derived by an automatic and regionally tuned classification of a time series of global Medium Resolution Imaging Spectrometer Fine Resolution mosaics.
- Precipitation data were the important data essential for developing the hydrologic model to compute the flood forecast hydrograph. Daily rainfall data of 10 rain gauge stations such as Padappai, Meenapakkam, Sriperumbudur, Tambaram, Kesavaram Anicut, Korattur Anicut, Nungambakkam, Tharamani, Thiruvallur, and Chembarambakkam influencing the catchment area of Adyar river were obtained from Water Resources Department of Tamil Nadu.
- The daily discharge data of Chembarambakkam Lake which is a major source of water for Adyar river, flow data at Nandambakkam Gauge station across Adyar river were obtained from the Water Resources Department of Tamil Nadu.

- HEC-HMS hydrological modeling environment was used for setting up the rainfall-runoff model of the Adyar river basin.

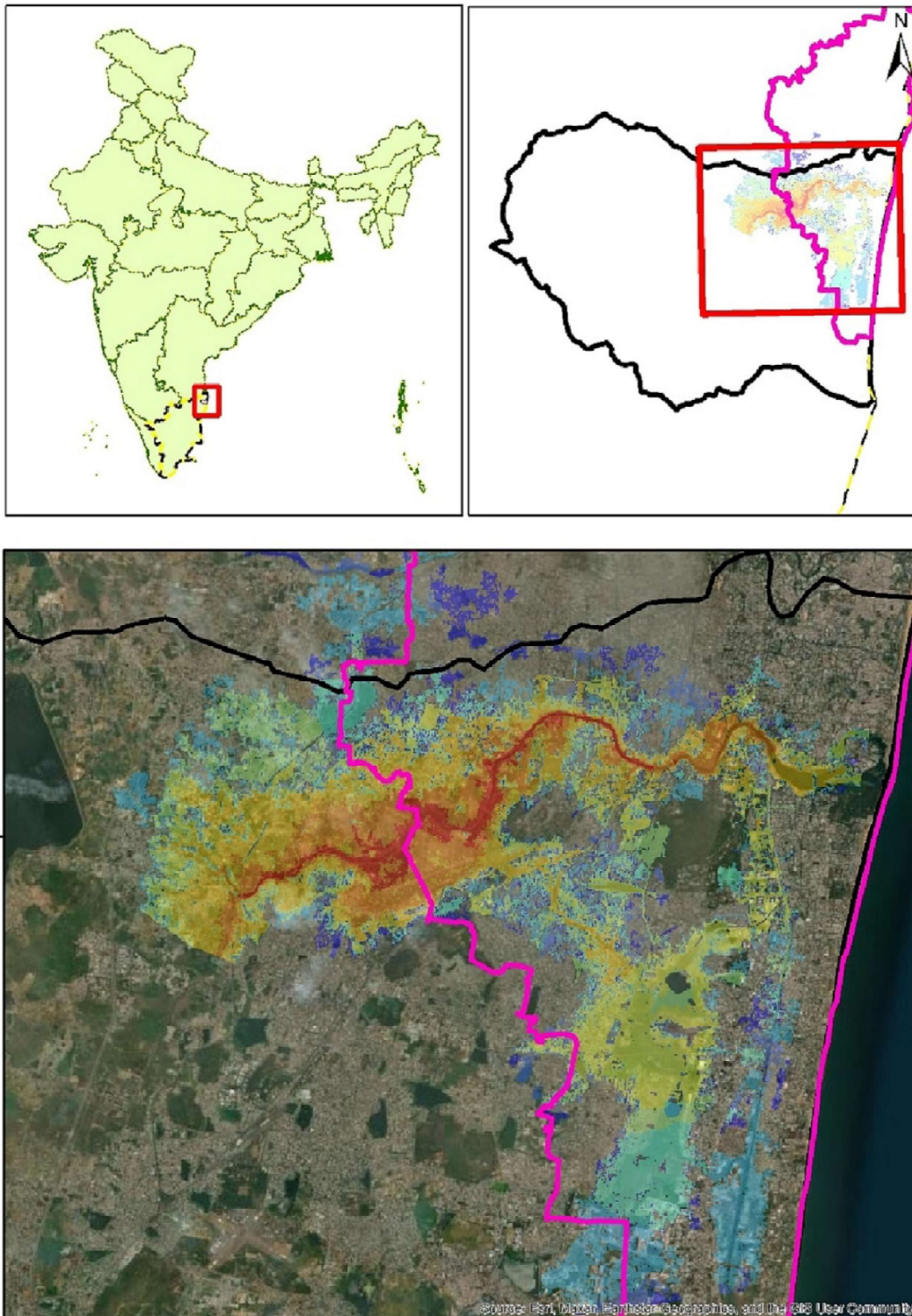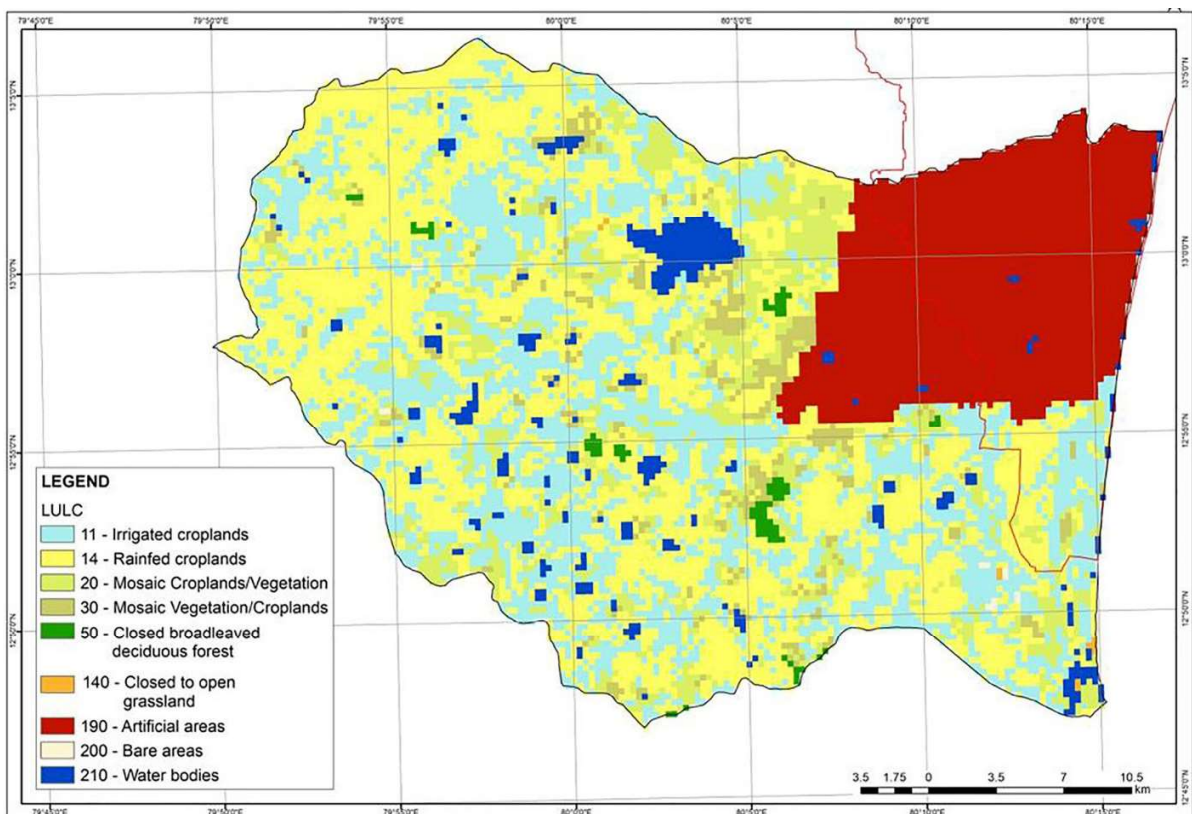**Figure 1 Map Location of the Adyar river basin**
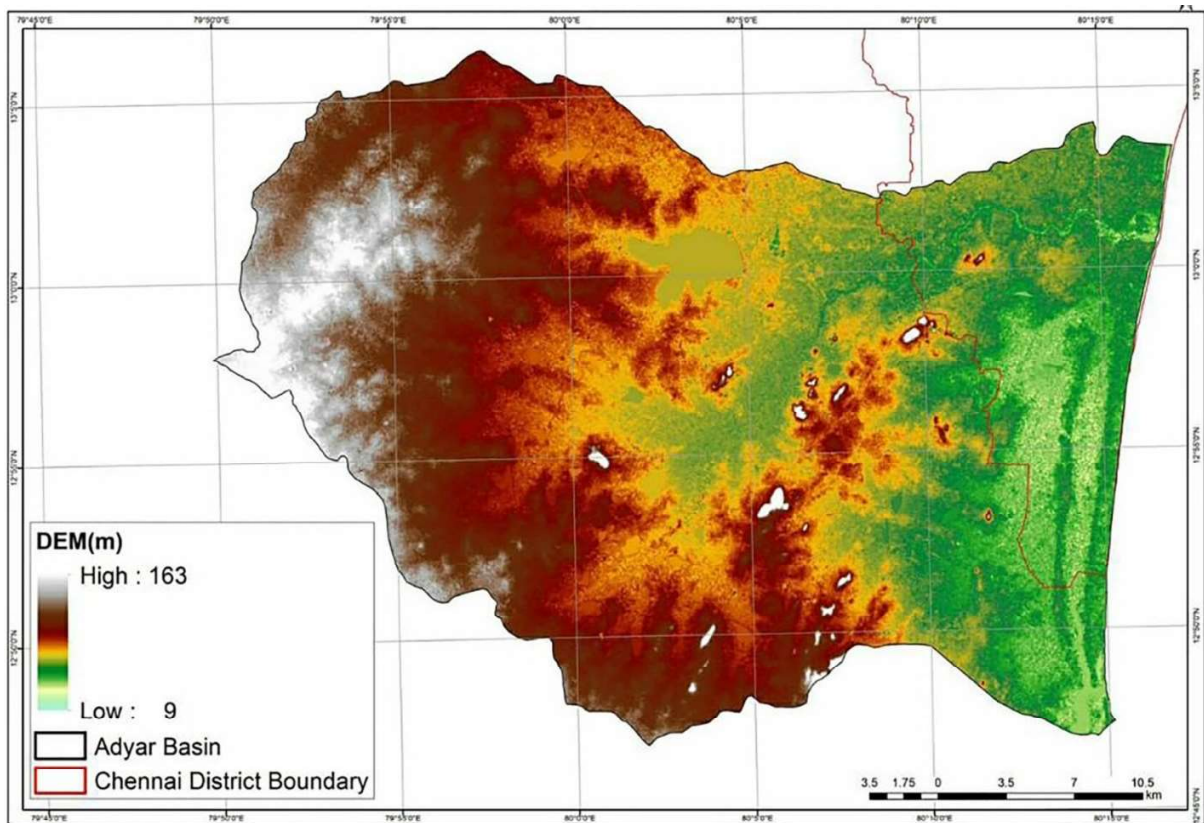
Figure 2 Digital Elevation map of Adyar Basin

Figure 3 Land cover and land use map of Adyar Basin
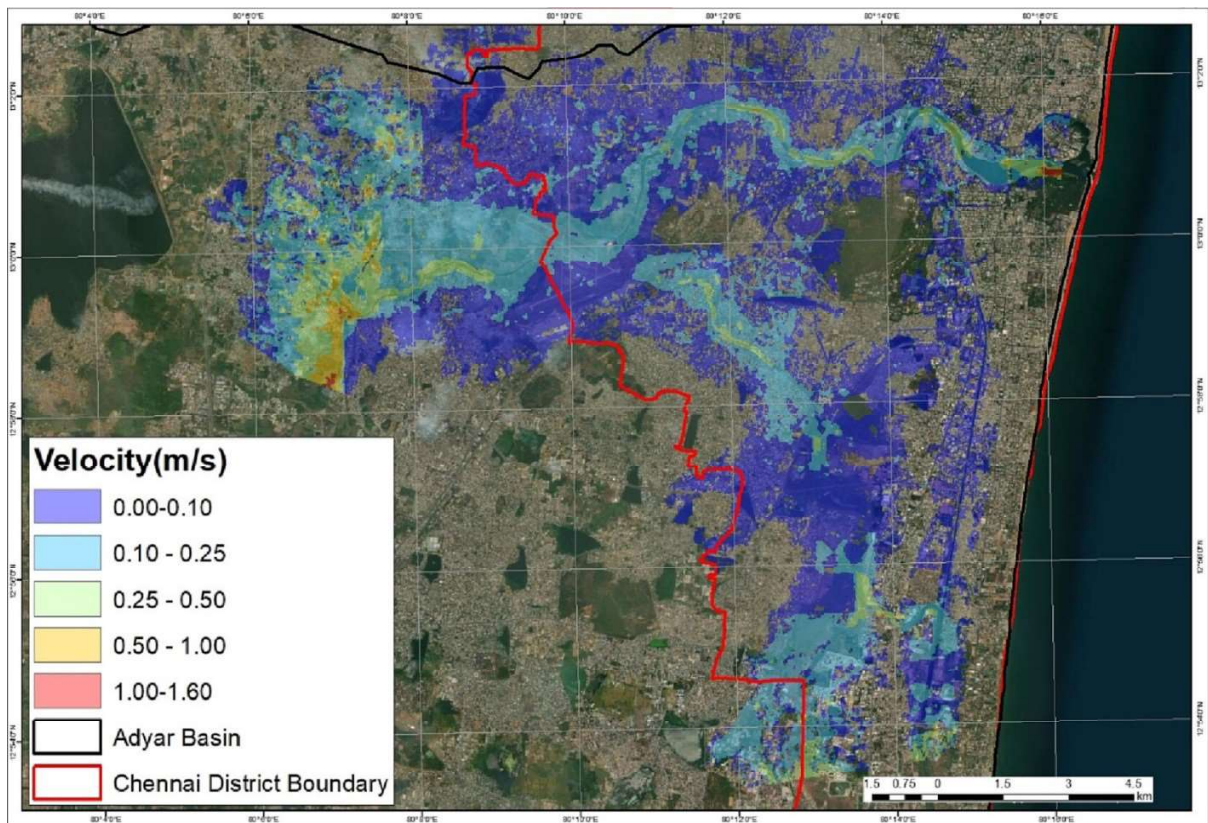
43

Figure 4 Maximum Velocity Flood scenario 2015 map of Adyar basin Chennai

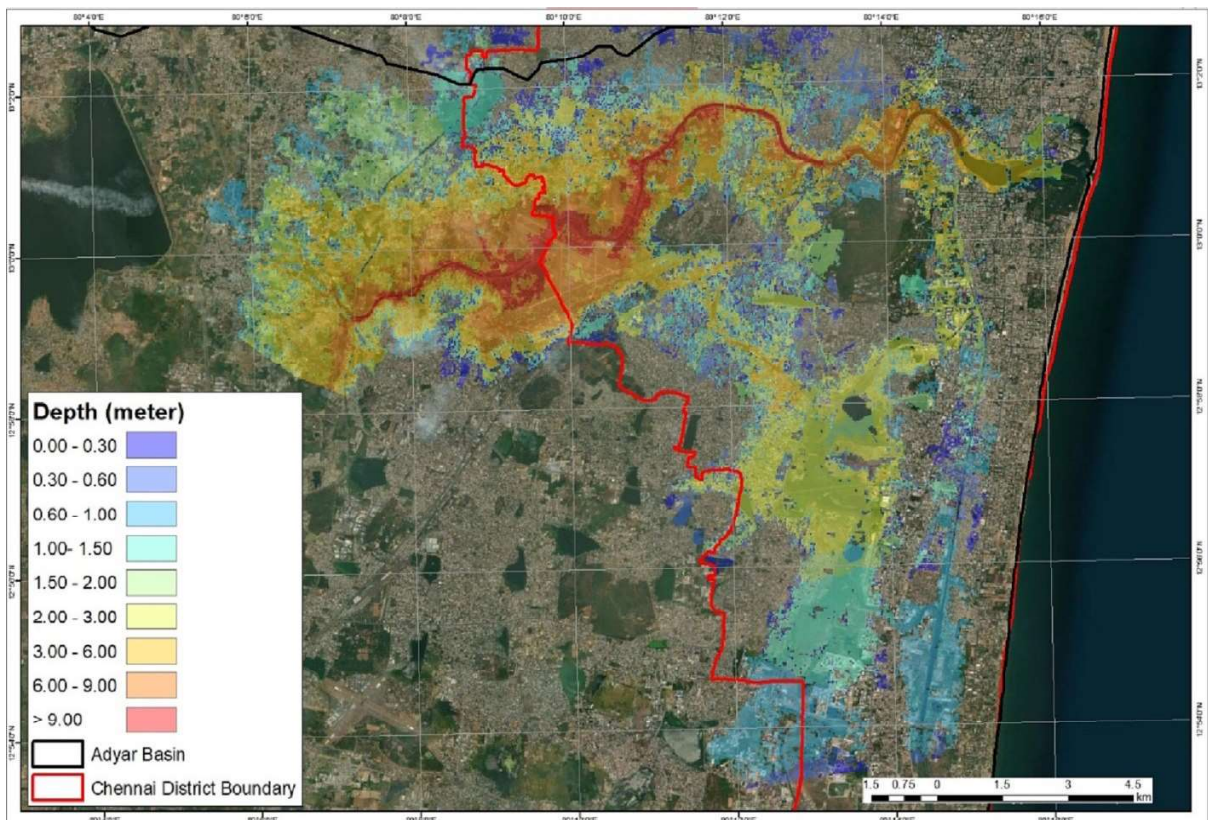**Figure 5 Maximum Water Depth Flood scenario 2015 map of Adyar basin Chennai**

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
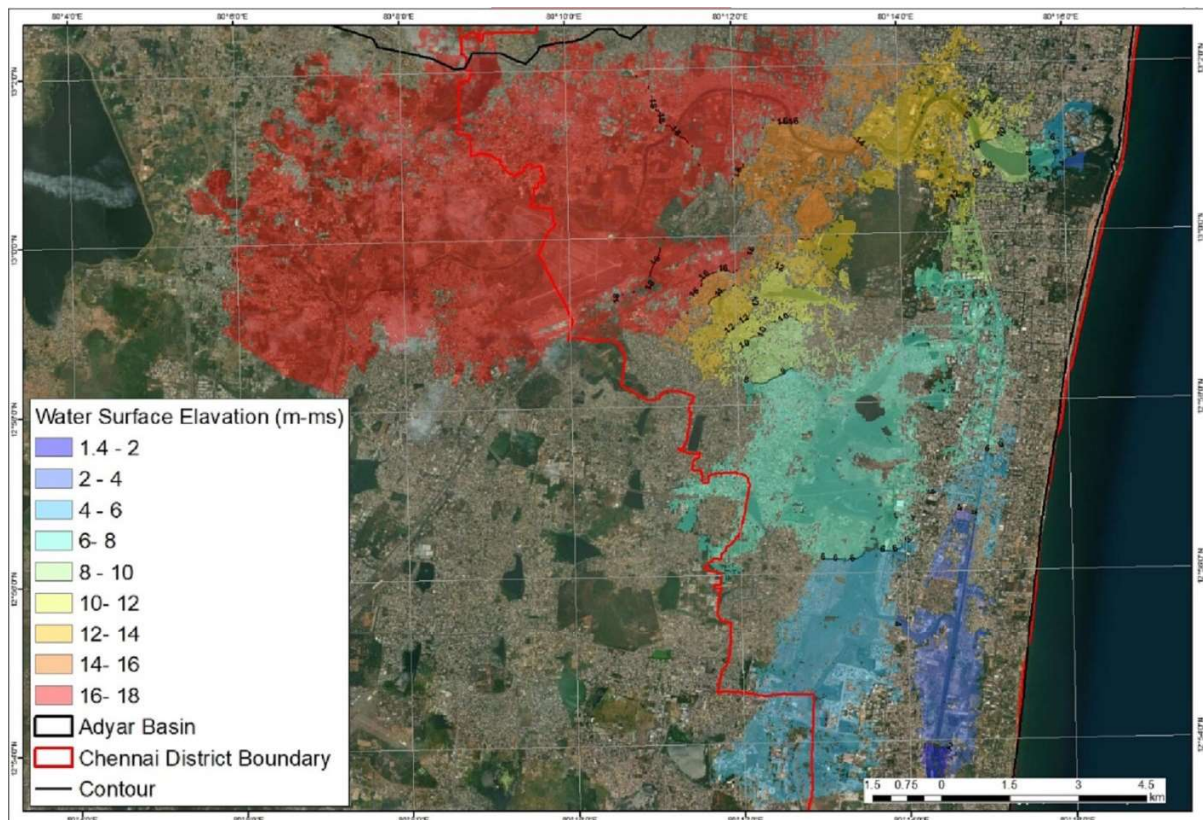Mannivakkam, Chennai - 600 048.

44

Figure 6 Maximum Water Surface Flood scenario 2015 map of Adyar basin Chennai

A flood forecasting and early warning system shall be considered as one of the primary nonstructural interventions essentially required for flood prevention and mitigation. The development of a hydrological forecasting and warning systems is the need of the hour for Chennai City.

The existing early warning system being implemented by the Indian Meteorological Department needs to be strengthened with the state-of-the-art equipment and technology. Standard operations procedure for a well-coordinated response to forecasts from the flood forecasting and early warning system can be derived and put into operation with proper dissemination mechanism to provide precise and timely information to government officials, rescue workers, media, and the general public to manage the incoming flood efficiently. A quick response team composing of officials from concerned departments can be formed, and the required expertise can be created for managing the flood event.

With the more advanced and predicted hydrologic and hydrodynamic modeling tools, it is possible to predict flood inundation and manage floods in more efficient ways by adopting suitable mitigation measures.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
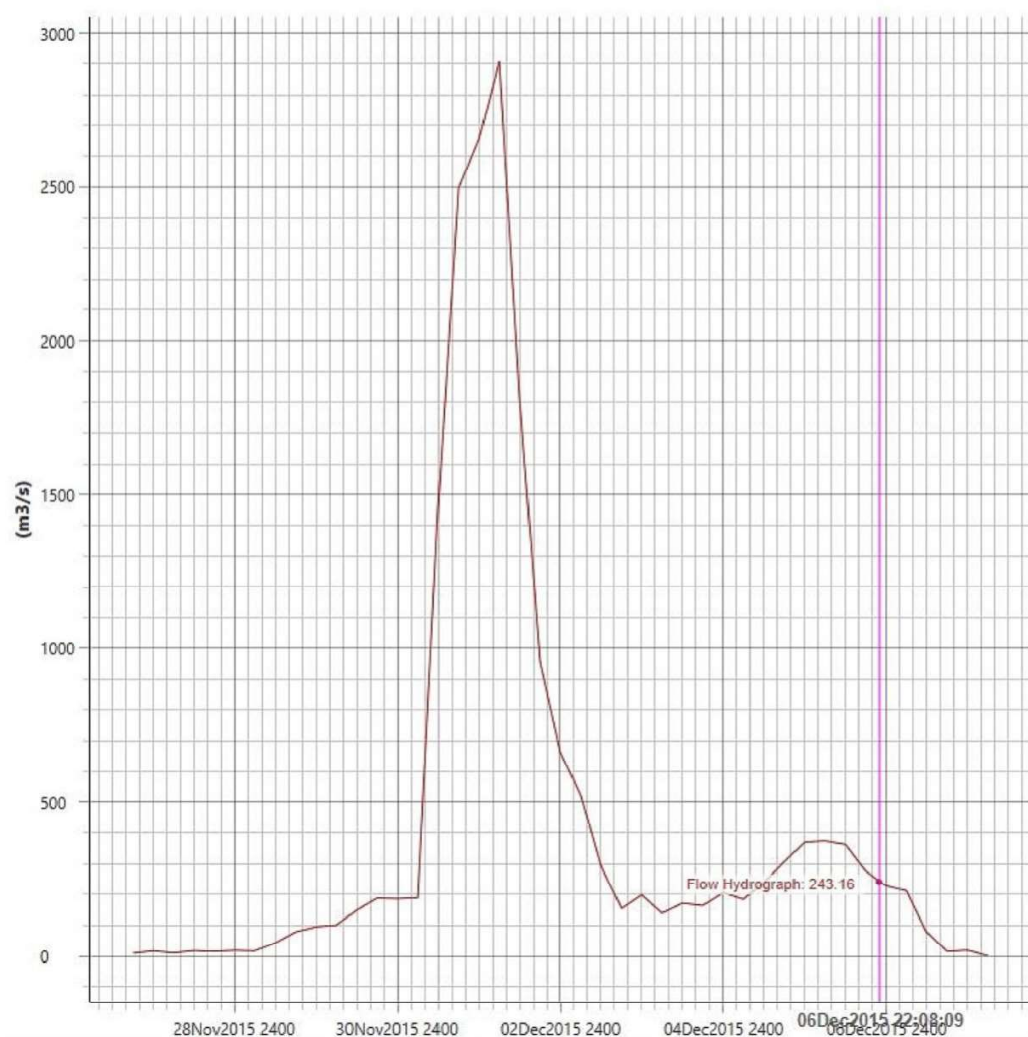Mannivakkam, Chennai - 600 048.

45

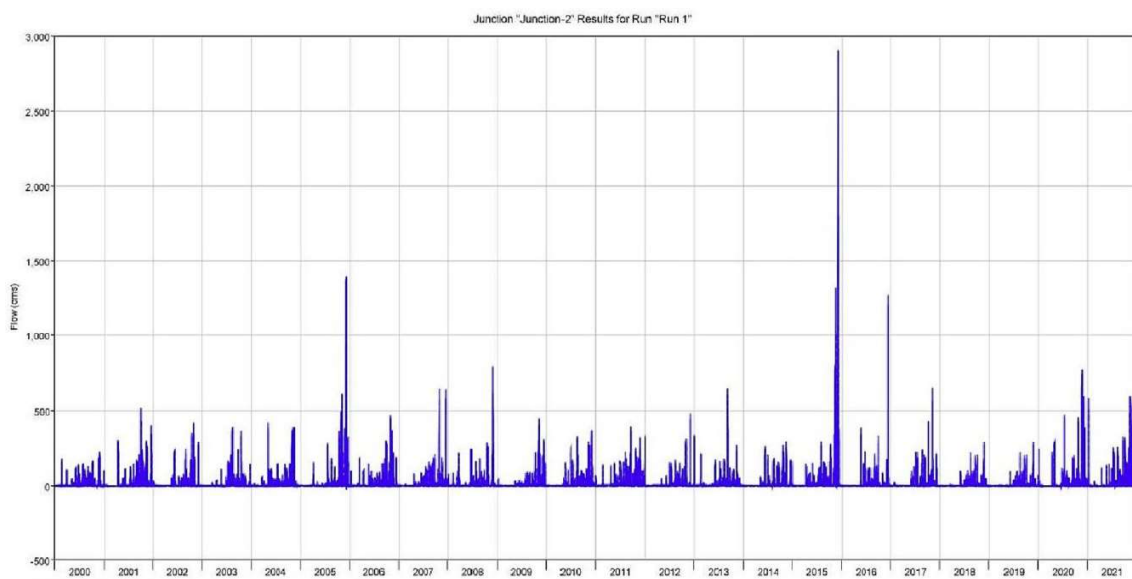**Figure 7 Flow Hydrograph in the HEC-RAS hydrodynamic model**

Figure 8Flow in Adyar river generated through simulation run of HEC-HMS

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Outcomes

The outcomes of the study on the estimation of flood in Adyar river Basin using arc GIS and HEC-RAS include:

1. Development of a calibrated and validated hydrologic model for the Adyar river Basin using HEC-HMS modeling tool.
2. Determination of inundation boundaries, maximum water depth, velocity of flood water, and arrival time in the study area.
3. Identification of key parameters for setting up the hydrodynamic model, including topographic parameters extracted from a digital surface model and land cover data from Globcover land cover map.
4. Recommendation for the implementation of a flood forecasting and early warning system to enhance flood prevention and mitigation efforts in Chennai City.
5. Proposal for strengthening the existing early warning system with advanced equipment and technology for more precise and timely flood information dissemination.
6. Suggestion for creating standard operating procedures for a well-coordinated response to flood forecasts and forming quick response teams for efficient flood event management.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Estimation of flood in Adyar river Basin using arc GIS and HEC-HMS by unit hydrograph model

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of the real-time facial recognition-based student proctoring system within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Topographic, hrdrological and meterological data)	20,000
2	GIS Data processing and preparation	20,000
3	HEC-HMS Model Development	30,000
4	Flood Estimation and Analysis (Simulate flood event and analyze flood inundation)	20,000
5	Documentation and Reporting (Writing project reports, user manuals, and technical documentation)	10,000
6	Contingency	10,000
	Total	**1,10,000**

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Fund Transfer NEFT e-Receipt

From Account	969940512
Branch Details	00073 - ASHOK NAGAR
To Account Number	159677052534
Beneficiary Name	Peri Educational and Charitable Trust
Transfer Amount (INR)	580000.00
Amount in Words	Rupees Five Lakh Eighty Thousand Only
Commission	29.21
Bank Name	INDUSIND BANK LIMITED
Branch Name	T NAGAR CHENNAI
IFSC Code	INDB0000328
Remarks	Vendor Payment
Transaction Date	13/01/2023
UTR No	IDIBH23013368064

Generated Time: 13/01/2023 11:00:07

(Note: This is a computer generated receipt and does not require any signature/stamp.)

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

49

Date: 28.02.2022

Lr No: PERIIT/ RD/032022

To

    Mr A. Azharuddin,

    CEO, Prince Infotech,

    Chennai.

PROJECT BUDGET DETAILS

Dear Sir,

    Based on your request you have provided on your visit on 25th Feb 2022, we have quoted the below amount for the projects we have discussed.

S. No	Title of the Project	Proposed Amount
1	Facial manipulation detection using UNET	Rs. 1,50,000/-
2	Real time facial recognition based student proctoring system using KNN algorithm	Rs. 1,20,000/-
3	Virtual Cloth fitting in 2D	Rs. 1,00,000/-
4	Personalized recommendation of topics by influence analysis using support vector machine algorithm	Rs. 1,30,000/-
5	Animal repellent system for smart farming using AI and Deep learning	Rs. 1,50,000/-

Thanking you

Regards,

Dr. R. PALSON KENNEDY, M.E. Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

To   2/3/2022

The Principal,

PERI Institute of Technology,

Chennai.

Reference Letter No: PERIIT/RD/032022

PROPOSAL DETAILS

Dear sir,

We have the following projects requirement for our clients, we wish to offer the order to your institution. We have specified the sanctioned amount and tentative date of completion of the project.

We will be conducting a review meeting once in 15 days to discuss the project progress. Expecting the fullest cooperation from your team.

S.No	Title of the Project	Sanctioned Amount	Tentative Completion Date
1	Facial Manipulation detection	Rs.1,40,000/-	30th June 2022
2	Real time facial recognition based student proctoring system	Rs.1,15,000/-	15th Jun 2022
3	Virtual cloth fitting in 2D	Rs. 93,400/-	30th June 2022
4	Personalized recommendation of topics by influence analysis	Rs.1,20,000/-	30th June 2022
5	Animal repellent system for smart framing using AI and Deep learning	Rs.1,40,000/-	15th June 2022

Thank you

Regards

Azharuddin A

CEO

Prince Infotech

Dr. R PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

044 47437264/8681814441

No:96, G.S.T Road.

INSTITUTE OF TECHNOLOGY

To   4/3/2022

Mr.A.Azharuddin,
CEO, Prince Infotech,
Chennai.

SUB: Acceptance of the Consultancy Project and Principle Investigator-Reg

Dear sir,

Based on your request you have provided we accept the project proposal and the amount sanctioned for the same. In this regards we have nominated the following faculty members as Principle investigator of the project.

S.No	Title of the Project	Principle Investigator
1	Facial Manipulatation detection	Dr.P.Neelaveni, Professor, CSE
2	Real time facial recognition based student proctoring system	Dr.R.Palson Kennedy, Professor & Principal, CSE
3	Virtual cloth fitting in 2D	Dr.G.Charulatha, Asso.Prof, ECE
4	Personalized recommendation of topics by influence analysis	Dr.M.Durairaj, Asso.Prof, ECE
5	Animal repellent system for smart framing using AI and Deep learning	Dr.M.Ramkumar Prabhu, Professor, ECE

Thanking you

Regards

PRINCIPAL
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
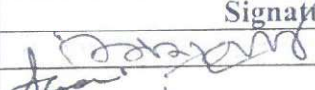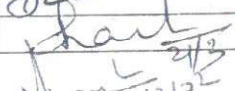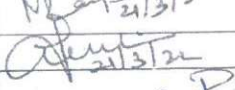PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI
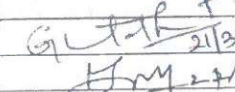EDUCATION

⊙ PERI Knowledge Park, Mannivakkam, Chennai - 600 048. Tamilnadu.
⊙ Phone No : 044 6133 3400   ⊛ admin@peri.education   ⊛ www.peri.education

52

PERI INSTITUTE OF TECHNOLOGY
(Approved by AICTE, Affiliated to Anna University)
Affiliation number : F.no .Southern /1-4260192094/2019/EOA

To   21/3/2022

Mr.A.Azharuddin,
CEO, Prince Infotech,
Chennai.

Minutes of the meeting

Dear sir,

The review meeting of the project is conducted on 21st March 2022, the process in the ongoing project is mentioned below.
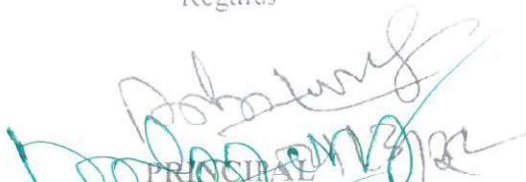
S.No	Title of the Project	Reviewed Area of project
1	Facial Manipulatation detection	System analysis and design
2	Real time facial recognition based student proctoring system	Non functional and performance requirement
3	Virtual cloth fitting in 2D	Model design and fitting module
4	Personalized recommendation of topics by influence analysis	System analysis and design
5	Animal repellent system for smart framing using AI and Deep learning	System analysis and Required specification

Name of the member	Signature
Dr.R.Palson Kennedy, Principal, PERIIT	
Mr.A.Azaruddin, CEO, Prince Infotech	
Ms.Sarah, Technical Team, Prince Infotech	
Dr.M.Ramkumar Prabhu, Professor & Head, PERIIT	
Ms.K.Varalakshmi, HOD/CSE, PERIIT	
Dr.P.Nelaveni, Professor, CSE, PERIIT	
Dr.G.Charulatha, Asso.Prof, ECE, PERIIT	
Dr.M.Durairaj, Asso.Prof, ECE, PERIIT	

Thanking you
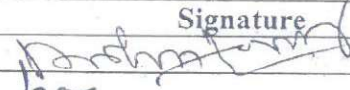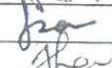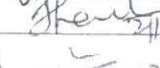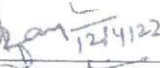
Regards

PRINCIPAL
Dr. R. PALSON KENNEDY, M.E, Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY

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Phone No : 044 6133 3400   admin@peri.education   www.peri.education

53

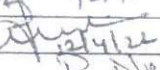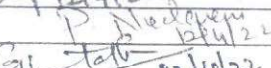To   12/4/2022

Mr.A.Azharuddin,
CEO, Prince Infotech,
Chennai.

Minutes of the meeting

Dear sir,

The review meeting of the project is conducted on 12th April 2022, the process in the ongoing project is mentioned below.

S.No	Title of the Project	Reviewed Area of project
1	Facial Manipulatation detection	Data processing system and algorithm
2	Real time facial recognition based student proctoring system	Module description and performance analysis
3	Virtual cloth fitting in 2D	System implementation google colab
4	Personalized recommendation of topics by influence analysis	Mathematical model and system implementation
5	Animal repellent system for smart framing using AI and Deep learning	Project scope and architecture

Name of the member	Signature
Dr.R.Palson Kennedy, Principal, PERIIT	
Mr.A.Azaruddin, CEO, Prince Infotech	
Ms.Sarah, Technical Team, Prince Infotech	
Dr.M.Ramkumar Prabhu, Professor & Head, PERIIT	
Ms.K.Varalakshmi, HOD/CSE, PERIIT	
Dr.P.Nelaveni, Professor, CSE, PERIIT	
Dr.G.Charulatha, Asso.Prof, ECE, PERIIT	
Dr.M.Durairaj, Asso.Prof, ECE, PERIIT	

Thanking you

Regards

Dr. R. PALSON KENNEDY, M.E., Ph.D
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

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EDUCATION

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54

To   17/5/2022
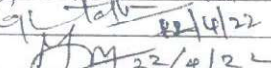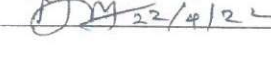
Mr.A.Azharuddin,
CEO, Prince Infotech,
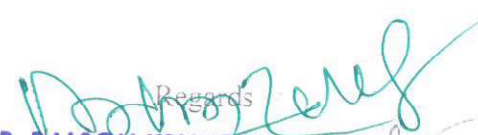Chennai.
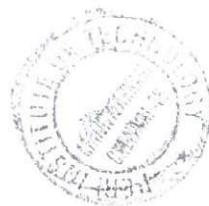
Minutes of the meeting

Dear sir,

The review meeting of the project is conducted on 17th May 2022, the process in the ongoing project is mentioned below.

S.No	Title of the Project	Reviewed Area of project
1	Facial Manipulatation detection	Testing objectives and unit testing
2	Real time facial recognition based student proctoring system	Testing strategies
3	Virtual cloth fitting in 2D	Description and implementation of the module
4	Personalized recommendation of topics by influence analysis	System implementation and Testing
5	Animal repellent system for smart framing using AI and Deep learning	Coding segments and test procedures

Name of the member	Signature
Dr.R.Palson Kennedy, Principal, PERIIT	
Mr.A.Azaruddin, CEO, Prince Infotech	
Ms.Sarah, Technical Team, Prince Infotech	
Dr.M.Ramkumar Prabhu, Professor & Head, PERIIT	
Ms.K.Varalakshmi, HOD/CSE, PERIIT	
Dr.P.Nelaveni, Professor, CSE, PERIIT	
Dr.G.Charulatha, Asso.Prof, ECE, PERIIT	
Dr.M.Durairaj, Asso.Prof, ECE, PERIIT	

Thanking you

Regards

PRINCIPAL

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

INSTITUTE OF TECHNOLOGY

To

30/6/2022

Mr.A.Azharuddin,
CEO, Prince Infotech,
Chennai.

Letter no: PERIIT/RD/122022

Completion of consultancy project and report/prototype submission – Reg

Dear sir,

Greetings, we are happy to inform that we have completed the project proposal and attached the report/prototype of the following consultancy projects.

1. Facial Manipulatation detection
2. Real time facial recognition based student proctoring system
3. Virtual cloth fitting in 2D
4. Personalized recommendation of topics by influence analysis
5. Animal repellent system for smart framing using AI and Deep learning

We wish to thank you for providing this opportunity and we have completed all the works in accordance to the input from Prince Infotech, Kindly intimate if the client needs any change in the completed work, we also provide periodic followup with the client for a period of 6 months on the completed work.

All payments pertaining to the project can be made in accordance with the said agreement to the PERI Institute of Technology account, once the completed work is satisfied by the client.

Thanking you

Regards

PRINCIPAL

Dr. L PALSON KENNEDY, M.E, Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam

FACIAL MANIPULATION DETECTION USING U-NET

OBJECTIVE

To find the location of the manipulation done in the given human facial image using U-net architecture.

SYSTEM ARCHITECTURE
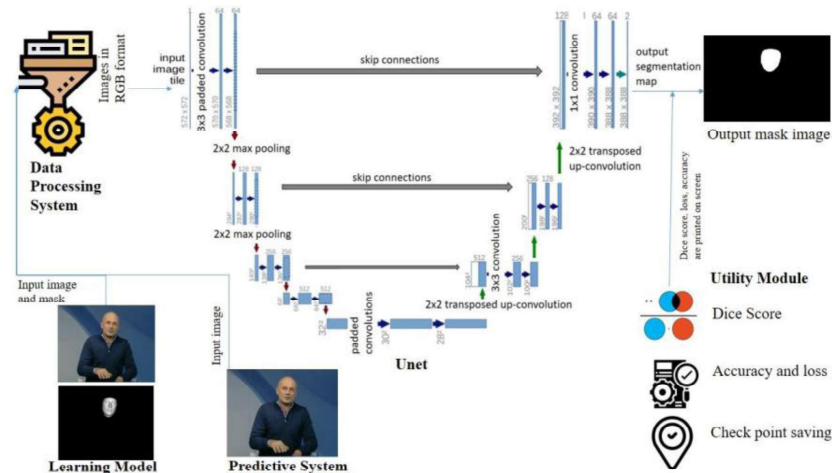
USE CASE DIAGRAM
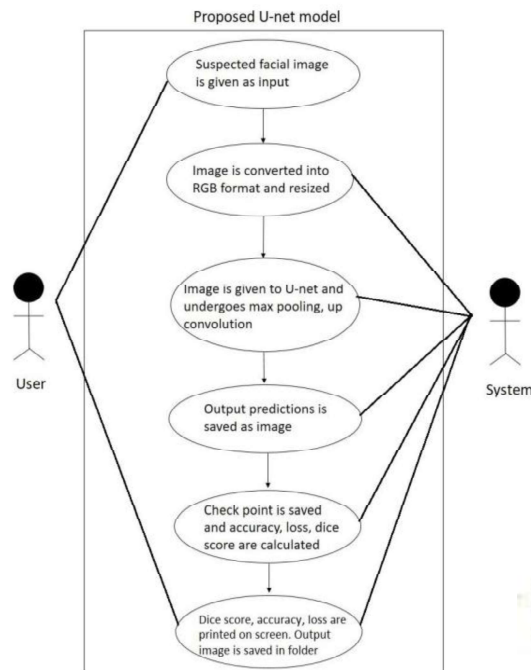
In this system, the Learning Model has two input data, image and mask, and the Prediction System has one input image. These images are send to Data Processing System, where resizing the input image and converting it into RGB format for facial images and grayscale for

mask images is done. These images are given into the Unet Model, where it under goes padded convolution, maxpooling, convolution, transposed up convolution to obtain the output mask.

The checkpoints are saved in each epochs and the accuracy, loss, dice scrore are calculated by the Utility Module. The output predictions is saved as image in folder and the dice score, accuracy, loss are printed on the screen.

MODULES

Data Processing System

The data processing system fetches the data from the input folder and changed it into the RGB format and resizes it as per requirement. Then, it returns the mask and the image to the learning model. It has the images of human faces, their masks for training purpose. The data folder has train_images folder to contain the images used for training, train_mask folder to contain the masks of the altered images. val_images and val_mask folders contains the images and masks used for validation respectively.

The dataset.py file uses *torch, numpy, Image* packages. It checks for the length/number of the images present in the folder.

Utility Module

It imports the ImgDataset from dataset.py. This file saves the checkpoint at each execution. A checkpoint is an intermediate dump of a model's entire internal state (its weights, current learning rate, etc.) so that the framework can resume the training from this point whenever desired. It loads the images for training, calculates the dicescore. Dice score is used to quantify the performance of image segmentation methods.

Learning Model

The learning model uses the data of facial images and their masks from the data processing system and gives it to the U-net model as input. Then the output of the U-net which is the area of manipulation is stored in the output folder. The learning model also saves checkpoint, checks accuracy, saves the predictions as images in a loop based on the number of epochs.

It prints the accuracy, loss, progress bar, dice score on the screen/terminal. It saves the predictions as image in the path specified.

Unet

UNet, a convolutional neural network was first designed, and applied in 2015 for biomedical image segmentation, by Ronneberger, Fischer and Brox.

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Mannivakkam, Chennai - 600 048.

58
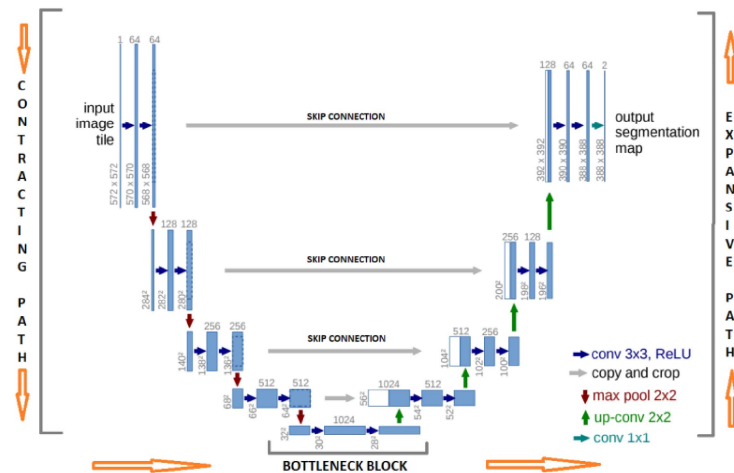
A typical convolutional neural network focuses on image classification tasks, where the output to an image is a single class label. But Unet focuses on localize the area i.e., a class label is supposed to be assigned to each pixel. The model.py file uses *torch* for building U-net.

The U-Net network model has 3 parts:
• The Contracting/Downsampling Path.
• Bottleneck Block.
• The Expansive/Upsampling Path.

SYSTEM PROCEDURE

- Suspected facial image and its mask is given as input in the input folder.
- Facial image is converted into RGB format, its mask is converted into grey scale and the images are resized.
- Images are padded and given into the U-net model and it undergoes convolution, maxpooling, transposed up convolutions
- The output predictions are saved as images in the output folder.
- The loss, accuracy, dicescore are calculated, and the checkpoints are saved.

TESTING OBJECTIVE

Software testing is an investigation conducted to provide stakeholders with information about the quality of the software product or service under test. Test techniques include the process of executing a program or application with the intent of finding failures, and verifying that the software product is fit for use. Software testing is an activity which aims at evaluating the quality of a software product and also to improve it by identifying defects. Software testing strives to achieve its objectives but has certain limitations. However, adherence to the established objectives ensures effective testing. The major objectives of Software testing are as follows:

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Finding defects which may get created by the programmer while developing the software. Gaining confidence in and providing information about the level of quality. To prevent defects.
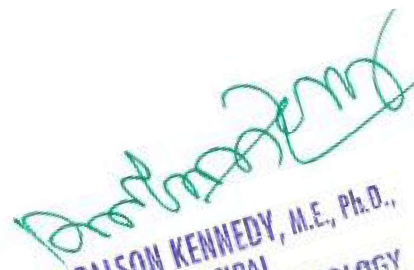
UNIT TESTING

Unit testing is a type of software testing where individual units or components of a software are tested. The purpose is to validate that each unit of the software code performs as expected. A unit is the smallest testable part of an application. It mainly has one or a few inputs and produces a single output. Unit testing is done to check the correctness of individual modules of the system. Each module is tested individually.

INTEGRATION TESTING

Testing is done for each module. After testing all the modules, the modules are integrated and testing of the final system is done with the test data, specially designed to show that the system will operate successfully in all its aspects conditions. Thus the system testing is a confirmation that all is correct and an opportunity to show the user that the system works.

OUTCOME

The usage of fake face representations is growing at a fast rate in social media and on the internet. Digital alteration methods and the usage of manipulated facial images are evolving rapidly. False representations lead to disbelief in the digital content. We are in tire need to find solution for this issue to prevent the social evils like false news spread, imitation of persons, etc,. This work will help us to not only differentiate the fake faces from pristine, but also shows the area of manipulation or alteration. Thus the false representations of human faces can be avoided in social media and on the internet.

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FACIAL MANIPULATION DETECTION USING U-NET

61

This utilization breakup outlines the allocation of funds for a facial manipulation detection project, totaling Rs.140,000. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

| Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hiring experts in computer vision and image processing)	40,000
2	Software Development	30,000
3	Hardware Equipment	20.000
4	Testing and Validation	25,000
5	Documentation and Reporting (Writing project reports, documentation, and research papers)	10,000
6	Contingency	15,000
	Total	**1,40,000**

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REAL-TIME FACIAL RECOGNITION BASED STUDENT PROCTORING SYSTEM USING KNN ALGORITHM

OBJECTIVE

To develop a real-time facial recognition based student proctoring system using the KNN algorithm.

SYSTEM ARCHITECTURE
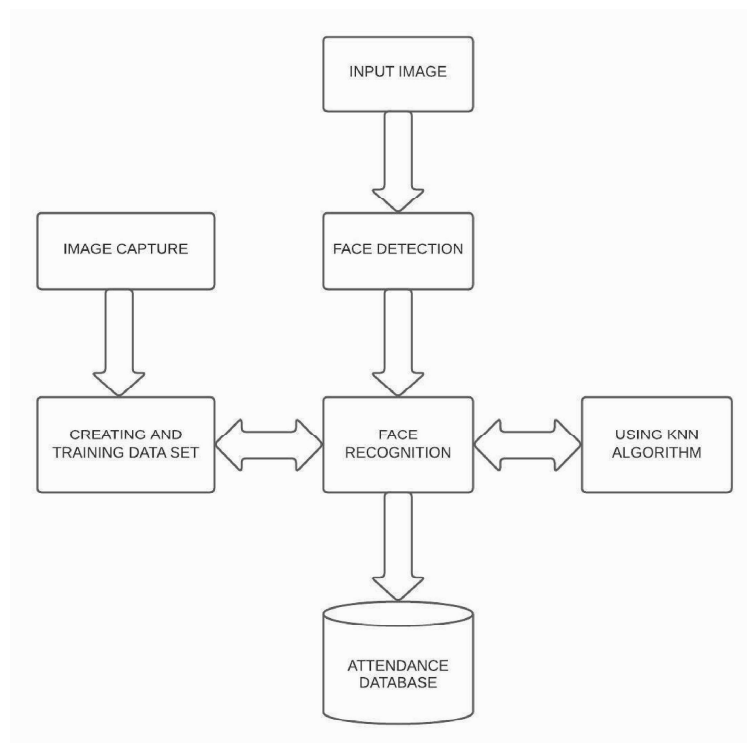
DESIGN APPROACH:

Design is the first step in the development phase for any techniques and principles for the purpose of defining a device, a process or system in sufficient detail to permit its physical realisation. Once the software requirements have been analysed and specified the software design involves three technical activities: design, coding, implementation and testing that are required to build and verify the software. The design activities are of main importance in this phase, because in this activity, decisions ultimately affecting the success of the software implementation and its ease of maintenance are made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer requirements into finished software or a system. Design is the place where quality

is fostered in development. Software design is a process through which requirements are translated into a representation of software. Preliminary design is concerned with the transformation of requirements into data.

UML DIAGRAMS
USE CASE DIAGRAM
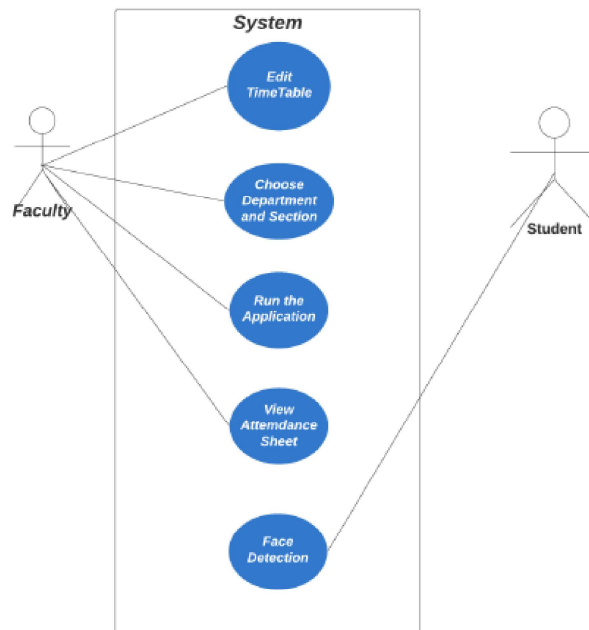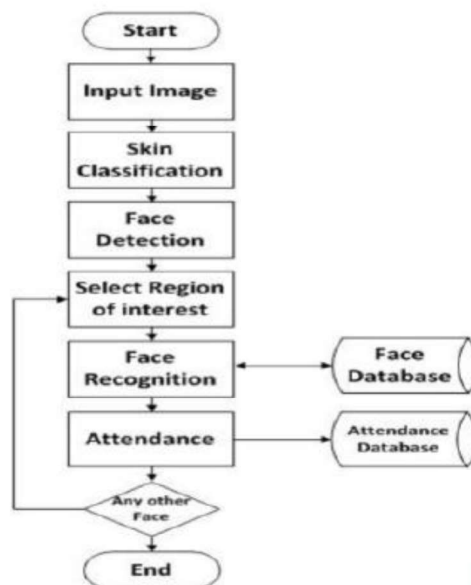

DATA FLOW DIAGRAM

PROPOSED SYSTEM ALGORITHM

STEP 1: (IMAGE ACQUISITION)

Obtain the images of the individuals to use as a data set for training the machine learning model and store them in separate folders labelled after the individual's name.

STEP 2: (TRAIN MODEL)

Use the data set to train the machine learning model using KNN Algorithm. Initialise the neighbours for the algorithm beforehand or do it dynamically by specifying it as None in the first place. Neighbours can be calculated by obtaining the length of the array of face encodings from an image. The model can be saved into the disk, to avoid the retraining of the model.

STEP 3: (PREDICT)

Capture an individual in real-time and obtain the facial locations and facial encodings of the same and find the closest distance to find the best matches for the test image (input image). Also we predict the classes and remove classifications that aren't within the threshold.

STEP 4: (ATTENDANCE MARKING)

The face of the individual is captured in real-time using a camera and on recognizing the individual with the help of our trained model, the attendance will be marked into an excel sheet for individual hours. If image is matched with the images on data set

// Mark the attendance for that person along with the time

Else

//Attendance will not be marked and an "unknown" message will be displayed.
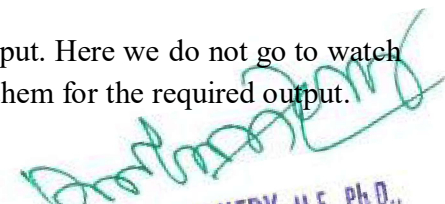
TESTING STRATEGIES

A number of software testing strategies have been proposed in the literature. All provide the software developer with a template for testing and all have the following generic characteristics:

● Testing begins at the component level and works "outward" toward the integration of the entire computer-based system.

● Different testing techniques are appropriate at different points in time.

● The developer of the s/w conducts testing and for large projects, an independent test group.

BLACK BOX TESTING

In this testing we give input to the system and test the output. Here we do not go to watch the internal file in the system and what are the changes made on them for the required output.

INTERFACE TESTING

Interface Testing is performed to verify the interfaces between sub modules while performing integration of sub modules aiding master modules recursively.

MODULE TESTING

Module Testing is a process of testing the system, module by module. It includes the various inputs given, outputs produced and their correctness. By testing in this method we would be very clear of all the bugs that have occurred.

OUTCOME

The Student Proctoring System is developed using Python, fully meets the objectives of the system which it has been developed. The system has reached a steady state where all bugs have been eliminated. The system is operated at a high level of efficiency and all the teachers and users associated with the system understand its advantage. The system solves the problem. It was intended to be solved as a requirement specification. The project has a very vast scope in the future.

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REAL TIME FACIAL RECOGNITION BASED STUDENT PROCTORING SYSTEM

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of the real-time facial recognition-based student proctoring system within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hiring experts in computer vision, machine learning, and software development)	35,000
2	Software Development	30,000
3	Hardware Equipment	15.000
4	Testing and Validation	15,000
5	Documentation and Reporting (Writing project reports, user manuals, and technical documentation)	5,000
6	Contingency	15,000
	Total	**1,15,000**

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VIRTUAL CLOTH FITTING IN 2D USINGDEEP LEARING

OBJECTIVES

- To provide a realistic shopping experience to the consumers, a system is required to predict how people look in a particular garment that they tend to buy.

- To bring Traditional approaches to make such a system were dealing with computer graphics where a 3D avatar of the person is created and various clothes are visualized on him/her. The usage of such approaches limitspractical applications due to high computation and hardware requirements.

- To build a fitting system such that, it visualizes people wearing new clothes without any 3D information, only using Images, in the same pose as they are standing in. This Project is composed of two modules one for changingthe shape of cloth given in the input according to the personality and another module to attach this cloth onto the individual body.

- To use Efficient CNN based networks, which learns to predict the parameters for changing shape via spatial transformation is used in the first module.
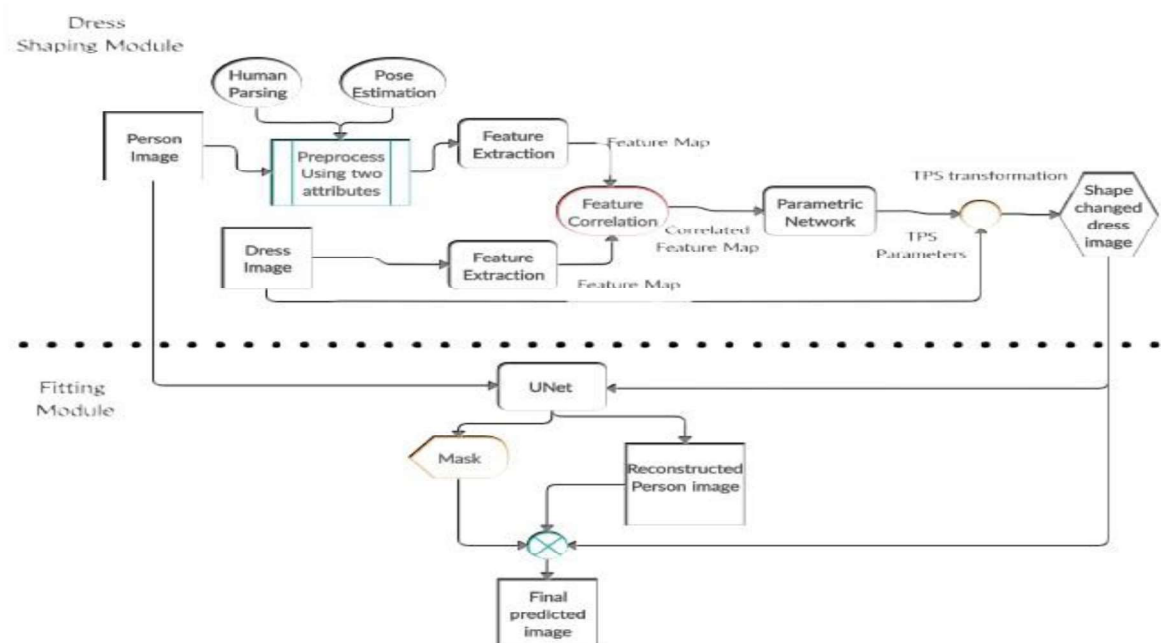
SYSTEM DESIGN

Fig 1: System design

SYSTEM ARCHITECTURE

The upper part of the figure is the Dress Shaping module. First the person image is preprocessed based on two attributes: pose estimation, human parsing which are explained. This preprocessed image along with the clothing image is given as input into first module which consists of three parts which are elaborated Feature Extraction, Feature Correlation, Parametric network and transformation

The output of this module is a shape changed dress image which is passed on to the next module along with the preprocessed person image into the fitting module. The lower part of figure is the Fitting module that predicts the reconstructed person image which highlights the regions where cloth should be fit and a mask that tells us regions in dress which are important for final predicted images of individual wearing new dress.

PROBLEM IDENTIFICATION AND ALGORITHM

The following algorithms and optimization techniques are to be used:

Thin-plate-spline transformation [15, 16] Thin-plate-splines Technique is used to provide a smooth interpolation between a set of control points. The surface is generated such that it is bent least (minimizing bend energy). The mapping function for any point (x,y) is given as:

$$F(x, y) = a_1 + a_2 x + a_3 y + \sum_{i=1}^{n} W_i U(|P_i - (x, y)|) \qquad (2.1)$$

The solution to this function has a closed form which can be solved using a system of linear equations as it is differentiable. TPS transformation is used widely in image translation applications where it is necessary to transform the shape of source image such that it matches into target image. TPS is an interpolation technique that provides a surface passing through all the points such that the bending energy U(jPi (x; y)j) is least possible.
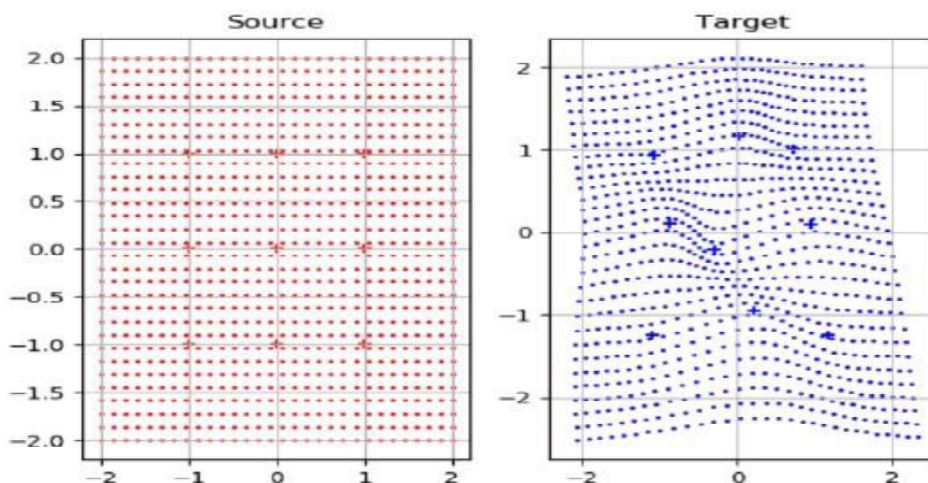

Fig 2: Thin Plate Spline Example

The fig 2. illustrates an example of such transformation. In the left part of the figure there are 9 control points in the source and based on the changes in co-ordinates of those 9 control points in the target the entire target surface is interpolated. If the change in coordinates of control points is in +ve x-direction then all the points are brought closer in x- direction, and if change is in -ve x-direction then the all points are little far compared to the source. In the figure due to various changes in directions of control points coordinates all the remaining points are displaced accordingly to the equation (2.1).
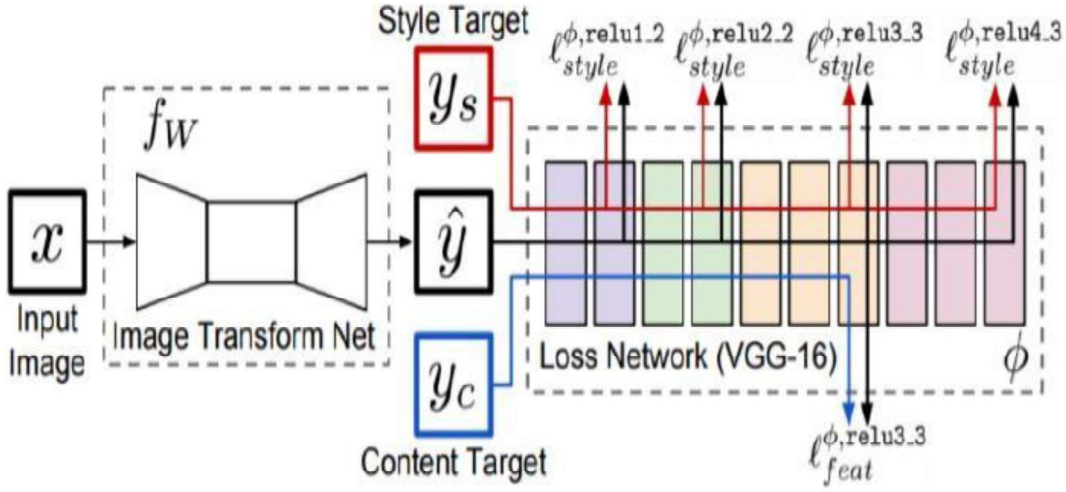
Fig 3: Method of calculating perceptual loss

In the fig 3 represents the method for calculating perceptual loss. It consists of two networks. The left part is the network which is to be trained which is a model to solve our task and the right part is said to be a loss network. In our project the loss network used is pretrained VGG-16 model. The predicted output of our model ŷ for the input x is passed through loss network and the loss is calculated as below: We are not concerned about ys in the figure as it doesn't relate in the task of our project.

$$L^j_{perc}(y, \hat{y}) = \frac{\left\| \eta_j(\hat{y}) - \eta_j(y) \right\|_2}{V_j} \tag{2.2}$$

$\eta_j(x)$ is the feature map at the jth layer in the loss network which in our case is VGG-16, V_j is the volume of input at that particular layer. This difference in y with ŷ, forces ŷ to be similar to y in terms of values atevery pixel.
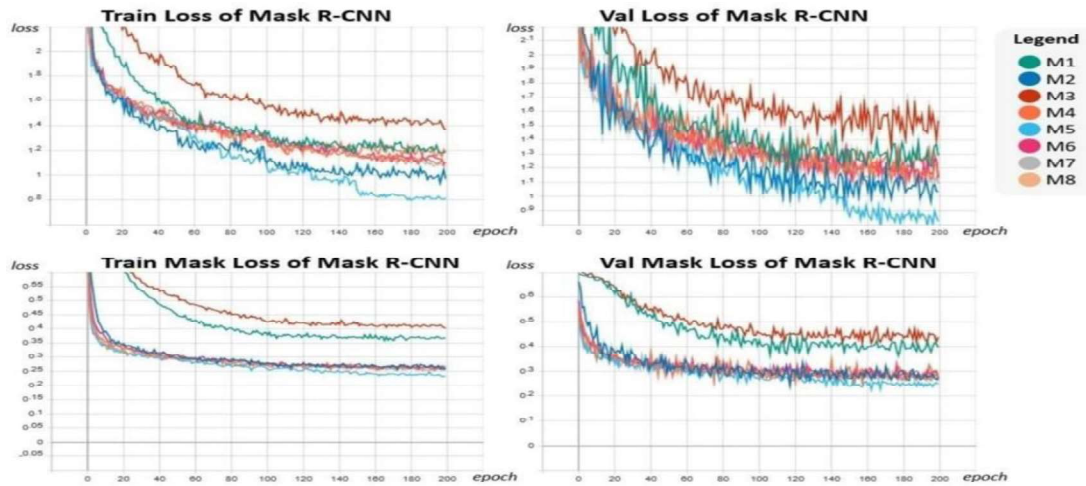
Fig 4: Performance Graph

OUTCOME

The virtual cloth fitting in 2D, a system that relies on using images, has been successfully developed. The main aim of the system is achieved which is fitting a dress onto the individual and visualizing the results as a generated image. The development of this project is based on efficient deep learning neural networks CNN, U-net are the main networks used. The dress shaping module is successfully able to change the shape of the new dress by estimating the necessary parameters. It is able to not only change the shape but also in maintaining the details of the dress's logo, patterns, text associated on the dress without much loss. The fitting module successfully fits the new dress on the individual without overfitting and occlusion with other body parts. The generated images have near natural appearance. This system will be helpful to bring a more realistic shopping experience to the users and is computationally efficient, and effective results can be generated. Robust predictions can be made with this system, which is necessary for large-scale integration like in E-commerce. critical parameters of the model are the features extracted and proper estimation of the TPS transformation parameters. The activation function in CNN are the important parameters and they are ideally chosen such that they give optimal values of loss function, from various experiments tried on changing neural network architecture.

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70

VIRTUAL CLOTH FITTING IN 2D USING DEEP LEARNING

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of Virtual Cloth Fitting in 2D within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hiring experts in computer graphics, image processing, and software development)	20,000
2	Software Development	35,000
3	Data Acquisition	10,000
4	Testing and Validation	10,000
5	Documentation and Reporting (Preparation of user manuals, documentation, and tutorials)	5,000
6	Contingency	13,400
	Total	**93,400**

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PERSONALIZED RECOMMENDATION OF TOPIC BY INFLUENCE ANALYSIS USING SUPPORT VECTOR MACHINE ALGORITHM

OBJECTIVES :

- To design a recommendation system for the users to recommend the best topics among the users
- To develop a system that promotes the interest of the user by recommending them with customized topics. LDA model is used for extracting all the topics of the user. Popular topics are then analysed and extracted.
- To analysis and find the influenced topics for the users and the topics are classified to positive and negative topics.

PROJECT FINDINGS :

During the last few decades, with the rise of social platforms like youtube, Netflix, Amazon, Flipkart and many other services recommender systems are becoming a part of our lifes. E-commerce suggest to buyers articles that interest them and online adverstisement suggesting the right contents to users with their preference, recommender systems are unavoidable in our daily lives. Recommender systems are algorithms aimed at suggesting the users with the relevant items they wish. Recommendationcan be made possible to all fields like movies, books, products or anything else. Twitter is a popular social networking platform where the users arerestricted with sending 140 character messages called tweets. In this work tweets from the twitter platform are considered for recommendation. Once the user registers over twitter, twitter recommends user to follow some popular accounts from categories like music, politics, sports and technology.

SYSTEM DESIGN :

Architecture Design
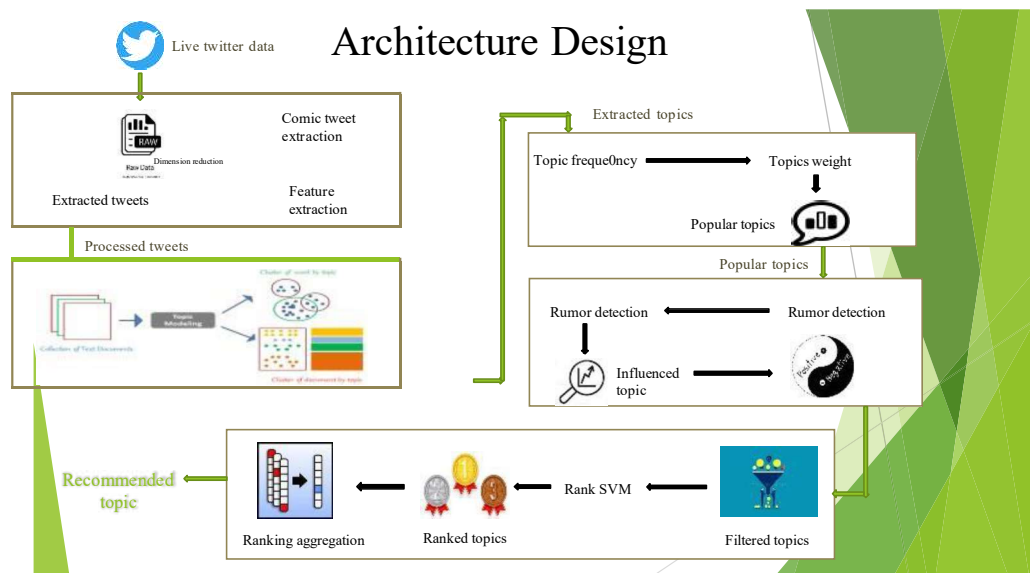
PROJECT IMPLEMENTATION

- Live twitter data is connected and the tweets are extracted based on the topic (ex:comics)
- Extracted tweets are analysed using LDA model and the topics are extracted
- Extracted topics are weighted for popular topic analysis
- Popular topics are taken and ranking is done (positive , neutral , negative) Influenced topic are extracted
- Influenced topic are taken as input using SVM algorithm and topics are ranked

PERFORMANCE ANALYSIS

Performance Evaluation Table 1:

No of Data	TP(%)		TN(%)		FP(%)		FN(%)		Algorithm					
									ITCAUSR			RANK AGGREGATION		
									P	R	F1	P	R	F1
500	96	98	94	95	21	21	30	29	82	76	78	83	76	78
1000	95	98	94	96	23	24	31	31	81	76	78	83	73	77
10,000	90	97	89	88	31	30	24	21	81	74	75	80	71	75
20,000	90	95	88	86	34	31	33	30	78	72	71	79	70	71
50,000	83	86	85	86	34	32	36	32	75	69	66	79	67	68
75,000	72	79	77	80	35	32	35	34	73	68	64	76	67	70
1,00,000	74	76	75	79	36	34	37	35	72	67	65	76	63	68
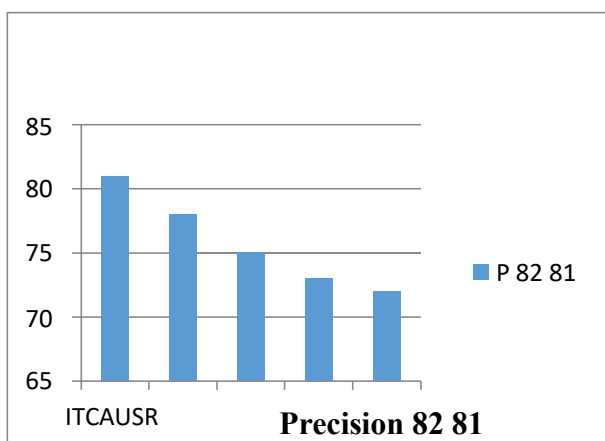
Fig 2: Precision for ITCAUSR
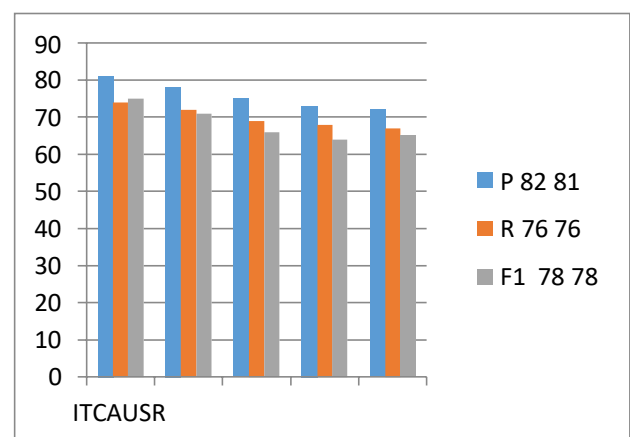
Fig 3: Evaluation for ITCAUSR

Recall 76 76
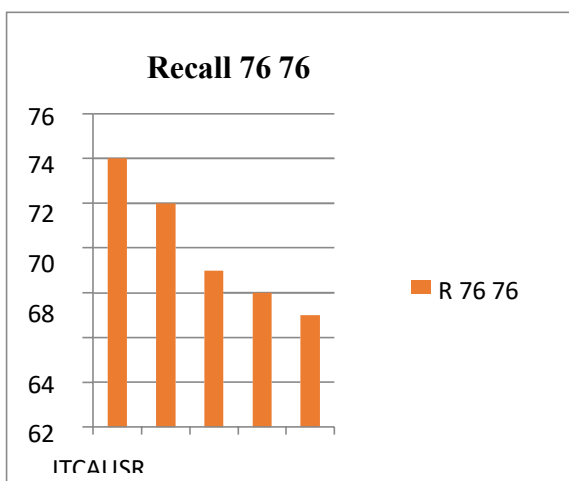
Fig 4: Recall for ITCAUSR

F1-score 78 78
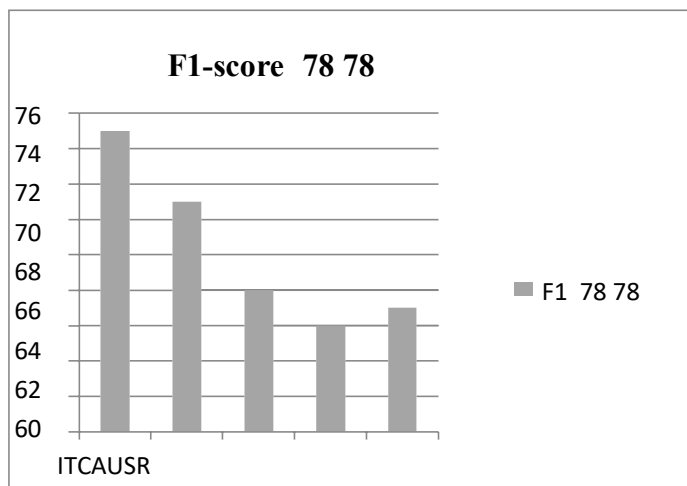
Fig 5: F1-score for ITCAUSR

RANK AGGREGATION
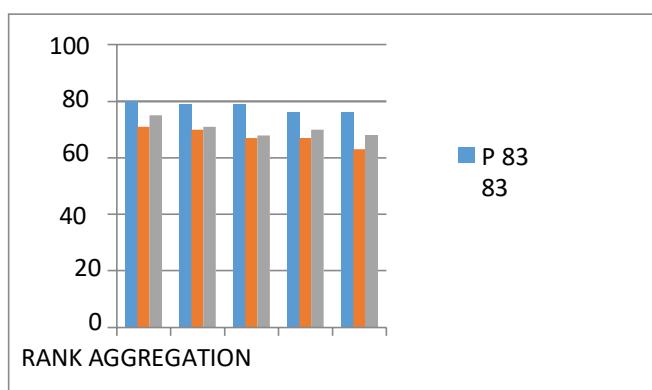
Fig 6: Evaluation for Rank Aggregation
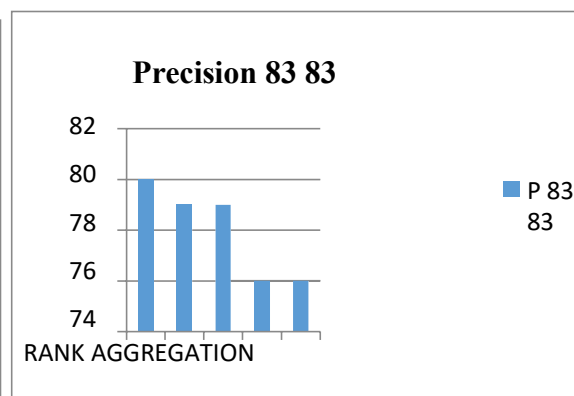
Precision 83 83

Fig 7: Precision for Rank Aggregation

Recall 76 73
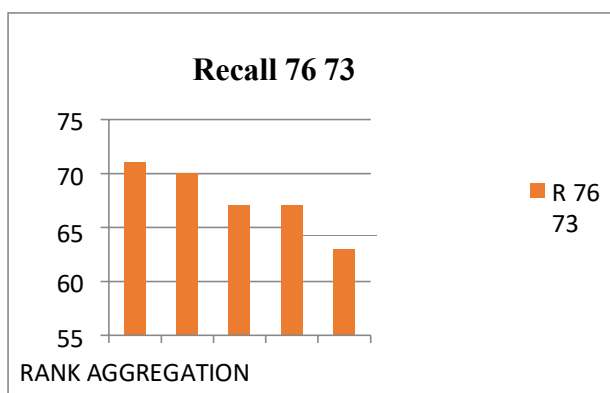
Fig 8: Recall for Rank Aggregation

OUTCOME :

      The goal of this work is thus to develop a recommendation system that recommends the user with the best news articles. Recommendation for the twitter users based on their tweets will enhance the recommendation quality and interest among the users. This work models the recommendation based on the tag correlation and ranking schema. Ranking of the users and tags are proposed to achieve the highly ranked tags for the users.

PERSONAL RECOMMENDATION OF TOPICS BY INFLUENCE ANALYSIS

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of personal recommendation of topics by influence analysis within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hiring experts in data science, machine learning, and natural language processing)	30,000
2	Data Acquisition and Preprocessing	15,000
3	Software Development	25,000
4	Testing and Validation	15,000
5	Documentation and Reporting (Preparation of user guides, technical documentation, and research papers)	10,000
6	Contingency	25,000
	Total	**1,20,000**

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ANIMAL REPELLENT SYSTEM FOR SMART FARMINGUSING ARTIFICIAL INTELLIGENCE AND DEEP LEARNING

OBJECTIVES :

- To develop and deploy many controlling, monitoring and tracking applications at a fine-grained level.
- To manage the relationship with the elements external to the agriculture ecosystem, such as wildlife, is a relevant open issue.
- To develop a system, that combines AI Computer Vision using DCNN for detecting and recognizing animal species, and specific ultrasound emission (i.e., different for each species) for repelling them.
- To identify the target, and if an animal is detected, it sends back a message to the Animal Repelling Module including thetype of ultrasound to be generated according to the category of the animal.

PROJECT FINDINGS :

In this project, deep convolution neural network-based classification algorithm is devised to detect animals both in video and images. Proposed approach is a classification model based on different features and classifiers. The different features like color, gabor and LBP are extracted fromthe segmented animal images. Possibilities of fusing the features for improving the performance of the classification have also been explored. Classification of animals is accomplished using CNN and symbolic classifiers. Initially, features are extracted from images/frames using blink app pre-trained convolution neural network. Later the extracted features are fed into multi-class CNN classifier for the purpose of classification.CNN is constructed using sequence of layers like Convolutional,subsampling and fully connected Layer.

Overall procedure for animal detection is given below:

Figure1.1. Agriculture and ICT innovation

1. The image is fetched using the monitoring panel.

2. The fetched image is processed using the python coding.

3. The fetched image is checked for various features of objects that match with any animal of traineddata set.

4. Then it detects and classifies the animal which has been captured by the monitoring panel.

5. Algorithm calculates the accuracy in percentage based on number of matched objects.

6. If the accuracy of detected animal is above 45% the alert signal will be sent to the registered user through the SMS Service Provider.

PROBLEM IDENTIFICATION:

Crop damages inflicted by means of animals are one of the largest challenges in the sector. Animals along with pigs, monkeys, and many others may additionally motivate Spartan harm to crops. They can harm the vegetation by means of feeding on plant components or simplest by means of the organization more than the field and squashing in extra of the vegetation. Therefore, animals may also effortlessly purpose considerable yield lossesand incite additional economic issues.

MATERIALS AND METHODS:

The animal data (like elephants,deer ,dear) are collectedby using Camera. For animal reviews analysis we collect the dataset from the animal dataset website by using selenium which is a web scraping module and based onourrequirementitwillregressivelysearchforthereviews. In this project, we have set a review collection up to 90 animal datasets on the site. Animal type is also included in the dataset and classify them by their characteristics . The collected data are modified into a table form for better

Table 1. The nine ultrasonic devices used, along with their frequency (in kilohertz), as stated by the manufacturers.

Devices	Manufacturer	Ultrasonic Frequency (kHz)
A. TICKLESS ® PET Ultrasonic Tick and Flea Repeller for Pet	ProtectONE Ltd., Budapest, Hungary	40
B. MOZZIGEAR™ Portable Ultrasonic Mosquito Repeller	Intelligent Health Systems, Guangdong, China	5-20
C. TICKLESS ® HORSE Ultrasonic Tick and Flea Repeller for Horses	ProtectONE Ltd., Budapest, Hungary	40
D. Pet's Pest Repeller	www.Petshopboyz.com.au, accessed on 28 September 2020, Sydney, Australia	n/a
E. L1-118 Portable Electronic Insect Repellent	Shenzhen Dowdon Tech Co., Ltd., Guangdong, China	9-21
F. Portable Smart Pest Repeller	Shenzhen Dowdon Tech Co., Ltd., Guangdong, China	13-75
G. CSB24 Ultrasound device against ticks and fleas	Intelligent Health Systems, Guangdong, China	n/a
H. ELECTRONIC HELMINTHES MACHINE	Hunan Goldenserise Tech Co., Ltd., Hunan, China	22-65
I. ULTRASONIC PEST REPELLER Pest Reject	Hunan Goldenserise Tech Co., Ltd., Hunan, China	50-60

n/a = not provided.

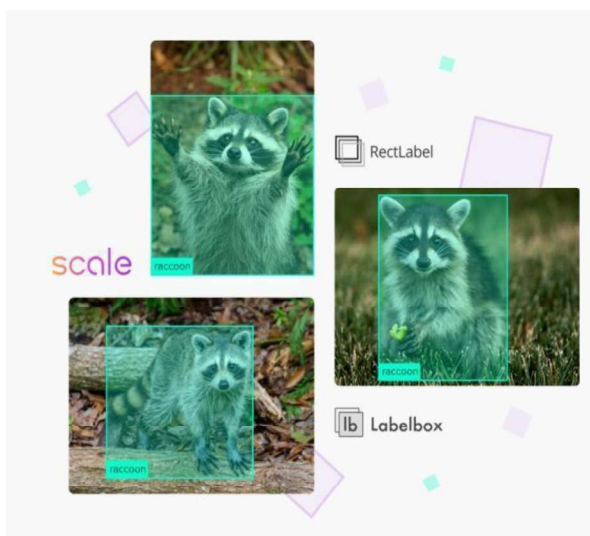$$Accuracy = (TP + TN)/(TP + TN + FP + FN)$$
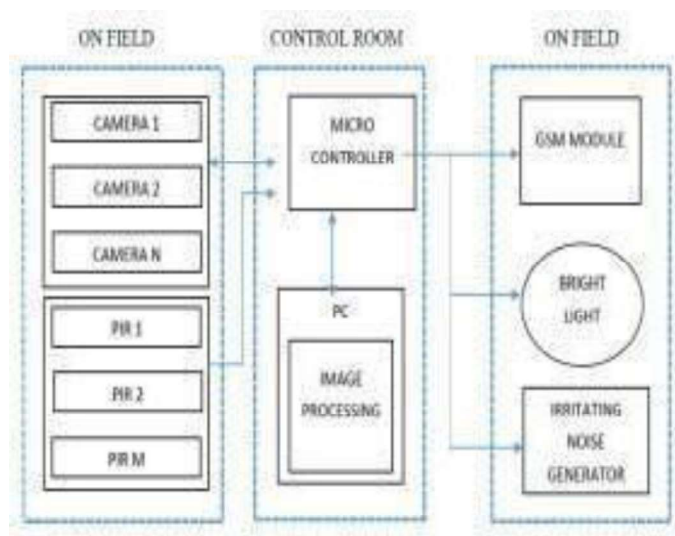

Figure1:Data from the website   Figure2:Block diagram of intrusion detection system
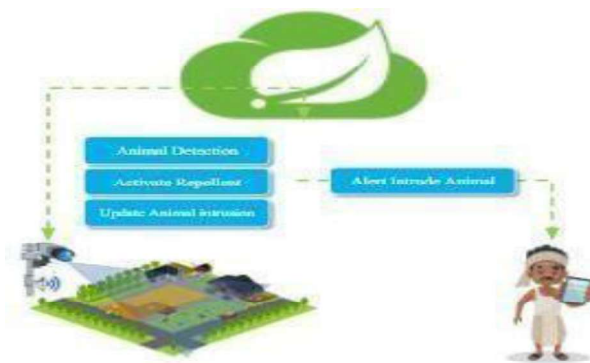
Figure3: Overview of the Design Process

METHODOLOGY:

In our venture, we're the use of the nice feasible algorithm to find the animal species based totally on the DCNN set of rules and Deep gaining knowledge. Gathering animal info (animal name, hair shade, range of legs, has tails, has a backbone, has a tooth, length) from the digital camera. In this model, first of all, we're using pre- processing like a color photo to grey scale and the use of binarization, from grayscale to black and white and then after we are the use noise discount like picture resolution, picture resizes, enhance image satisfactorily. After that we are the usage of segmentation, a video is transformed into no of frames for a higher type.

Feature Extraction, after completing segmentation, in this we use foreground extraction and history subtraction approach, through the usage of this we can pick out the foreground and historical past photos. As an instance, we can handiest seize shifting objects. After that, we will use type the animals with the use of DCNN and RPN by way of educating the dataset. In this process, first, we view animals from a three-D model and compare it with the dataset and we will classify them. After that, we can train the dataset after which we are able to use stay or archived video to compare with the dataset. After that, we use DCNN and RPN algorithms to identify the animal species. If it is not inside the dataset it's going to show no longer determined. If the found way it will discover it. After that, it'll create ultrasonic waves to annoy the animals and make them run far away from the fields. It will also send the notification to the farmers.

OUTCOME :

Agricultural farm safety is a well-being wished time these days. Then, to achieve this, a machine based on a dream is proposed and completed utilization of Python and Open CV and fostered an Animal Repellent device to victory the creatures. The execution of the product required the design and improvement of a mind-boggling gadget for shrewd creature shock, which coordinates recently progressed programming added substances and permits perceiving the presence and types of creature in genuine time and to stay away from crop harm because of the creatures. Founded on the classification of the creature recognized, the limit processing instrument executes its DCNN Animal notoriety model to find the aim, and assuming a creature is identified, it sends lower back a message to the Animal Repulsor module alongside the type of ultrasound to produce in sync with the class of the creature. The proposed CNN became assessed in the made creature data set. This task gave a genuine time observing arrangement essentially founded on the AI period to manage the issues of yield harms against creatures. This age utilized can assist ranchers and agronomists with their choice making and the board method..

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
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Mannivakkam, Chennai - 600 048.

ANIMAL REPELLENT SYSTEM FOR SMART FRAMING USING AI AND DEEP LEARNING

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of personal recommendation of topics by influence analysis within the allocated budget. The certificate provides a detailed breakdown of expenditure across key project components, including research and development, software development, hardware equipment, testing and validation, documentation and reporting, and contingency.

Sl. No.	Utilization Verticals	Amount Spent (Rs)
1	Research and Development (Hiring experts in AI, deep learning, and agriculture)	40,000
2	Software Development	30,000
3	Software Development	30,000
4	Testing and Validation	20,000
5	Documentation and Reporting (Preparation of user manuals, technical documentation, and research reports)	10,000
6	Contingency	10,000
	Total	**1,40,000**

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TMB
Tamilnad
Mercantile
Bank Ltd

Transaction Receipt

Sender Name	PRINCE INFOTECH
From Account	XXXX XXXX XXXX XXXX 0468
Beneficiary Name	Peri Educational and Charita...
Account Number	159677052534
IFSC	INDB0000328
Mode of Transfer	RTGS
Amount	₹ 5,00,000
Remarks	peri
Transaction Date	16/09/2022 12:36 PM
Transaction ID	22591223130
UTR No	TMBLH2225908950
Transaction Status	Successful

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

TMB
Tamilnad
Mercantile
Bank Ltd.

Be a step ahead in India

Transaction Receipt

Sender Name	PRINCE INFOTECH
From Account	XXXX XXXX XXXX 0468
Beneficiary Name	Peri Educational and Charita...
Account Number	159677052534
IFSC	INDB0000328
Mode of Transfer	NEFT
Amount	₹ 1,08,400
Remarks	peri
Transaction Date	16/09/2022 12:37 PM
Transaction ID	225912232859
UTR No	TMBLH2225089705
Transaction Status	Successful

Dr. E. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

To

Date: 23/11/2020

The Proprietor,

VISHVAA RUBBER PRODUCT

Idayanchathu, Bagayam, Vellore

Sub: Proposal for a project – reg.

Dear Sir,

     With reference to the discussion on the below mentioned project during your visit on 21.11.2020, we are sending this budget proposal for approval. The proposal covers all the necessary costs associated with the project.

S.No	Title of the Project	Proposed Amount
1	Making A Die Design And Analysis Of Rubber 3L-Gaskets	Rs. 9,00,000

    Thanking you for reviewing the proposal. Please contact us if you have any queries.

With regards,

Principal
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

VISHVAA RUBBER PRODUCT

Date: 04/12/2020

To

The Principal,

PERI institute of technology,

Mannivakkam,

Chennai - 600048.

Copy to: HOD/Mech

Dear sir/Madam,

Sub: Project Acceptance and Sanction Order – Reg. Ref: CI/2020/CP-56

We are greatly privileged to offer the grant of **Rs.800000** to the project "Making A Die Design And Analysis Of Rubber 3L-Gaskets". The project will be carried forward during the period 8.12.2020 to 14.4.2022 by the team members Mr Anil Kumar, Department of Mechanical Engineering, PERI Institute of Technology, Chennai-48, Tamil Nadu. We would extend our continuous support throughout the implementation of the project.

Thanking You

With Regards

Chellamuthu. M

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Idayanchathu, Bagayam, Vellore.
Ph: 9444729978

PERI

INSTITUTE OF TECHNOLOGY

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)
AICTE Permanent ID Number : 1-5937291

To

Date: 06/12/2020

The Proprietor,

VISHVAA RUBBER PRODUCT

Idayanchathu, Bagayam, Vellore

Sub: Acceptance of Consultancy Work – reg.

Dear Sir,

I am pleased to write this letter of acceptance in response to your proposal for consultancy work on **"MAKING A DIE DESIGN AND ANALYSIS OF RUBBER 3L-GASKETS"**. We are happy to get associated with your esteemed group through this.

We would share our faculty expertise and the facilities in the department for a successful completion of the consultancy work. We will work with you and your colleagues prior to those dates to formulate questions, determine group composition, comment on your questionnaire and help in whatever other ways we can.

We are eager to necessitate the active support and ownership of this project at every level for ultimate success. We are looking forward at your convenience for the preparatory work after our initial discussion.

Thank you.

With Best regards,

Principal
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)
AICTE Permanent ID Number : 1-5937291

INSTITUTE OF TECHNOLOGY

Date: 07/12/2020

Lr No: PERIIT/ RD/012020/ Circular

With reference to the acceptance of the submitted proposal to the Vishvaa Rubber Products Ltd, the principal investigator for the project is decided and mentioned below. All are advised to complete the project satisfying the requirements within the deadlines given by the company.

Title of the Project   : **Making a Die Design and Analysis af Rubber 3L-Gaskets**
Principal Investigator : **Mr. Anil Kumar**

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Copy to

Vice Principal

HOD-Mechanical

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINNERING

CIRCULAR

DATE: 03/04/2021

PERIIT/ R&D/ 01821

This is to inform that the review meeting for the consultancy project titled "Making a Die Design and Analysis of Rubber 3L-Gaskets" is scheduled on 05/04/2021at Vice Principal cabin, BETA block between 1:00 pm and 2:00 pm.

Agenda

- Completion Status
- Project requirements.

HOD/Mech
Head of the Department
Dept. of Mechanical Engg
PERI INSTITUTE OF TECH
Mannivakkam, Ch-600 048.

Copy to

Vishvaa Rubber Products Ltd

Principal, PERIIT

Vice Principal, PERIIT

R&D Coordinator

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINNERING

CIRCULAR

PERIIT/ R&D/ 01821

This is to inform that the review meeting for the consultancy project titled "Making a Die Design and Analysis of Rubber 3L-Gaskets" is scheduled on 23/12/2021at Vice Principal cabin, BETA block between 1:00 pm and 2:00 pm.

Agenda

- Completion Status
- Project requirements.

HOD/Mech

Head of the Department
Dept. of Mechanical Engg
PERI INSTITUTE OF TECH
Mannivakkam, Ch-600 048.

Copy to

Vishvaa Rubber Products Ltd

Principal, PERIIT

Vice Principal, PERIIT

R&D Coordinator

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
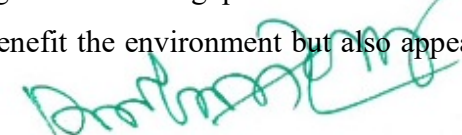Mannivakkam, Chennai - 600 048.

MAKING A DIE DESIGN AND ANALYSIS AF RUBBER 3L-GASKETS

The study significantly advances gasket design by employing Finite Element Analysis (FEA) to optimize both performance and durability. By integrating FEA, researchers can simulate various conditions and stresses that gaskets will encounter in real-world applications, allowing for a comprehensive understanding of their behavior before physical prototypes are made. This predictive capability reduces development time and costs while ensuring that the final product meets stringent performance criteria.

A key aspect of the research is the identification of superior rubber compounds. These materials were selected based on their exceptional resilience and resistance to environmental factors, such as temperature fluctuations, chemical exposure, and UV degradation. By improving the material selection process, the study aims to enhance the lifespan and reliability of gaskets, which is crucial for industries where failure can lead to significant downtime and costs.

Moreover, insights gained from the manufacturing process play a vital role in improving precision and efficiency. By examining how different manufacturing techniques affect the final product, the research identifies best practices that not only enhance the quality of the gaskets but also streamline production processes. This dual focus on performance and manufacturability ensures that the gaskets can be produced at scale without compromising quality or increasing costs.

The study also emphasizes compliance with industry standards, which is essential for ensuring that the gaskets can be used in various applications without risk. By aligning the design and manufacturing processes with recognized standards, the research enhances the commercial viability of the gaskets and fosters trust among potential users. In terms of sustainability, the study advocates for cost-effective practices that minimize environmental impact. This approach includes selecting eco-friendly materials and optimizing manufacturing processes to reduce waste and energy consumption. Such practices not only benefit the environment but also appeal to a growing market segment that values sustainability.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
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Mannivakkam, Chennai - 600 048.

Top die   Bottom die
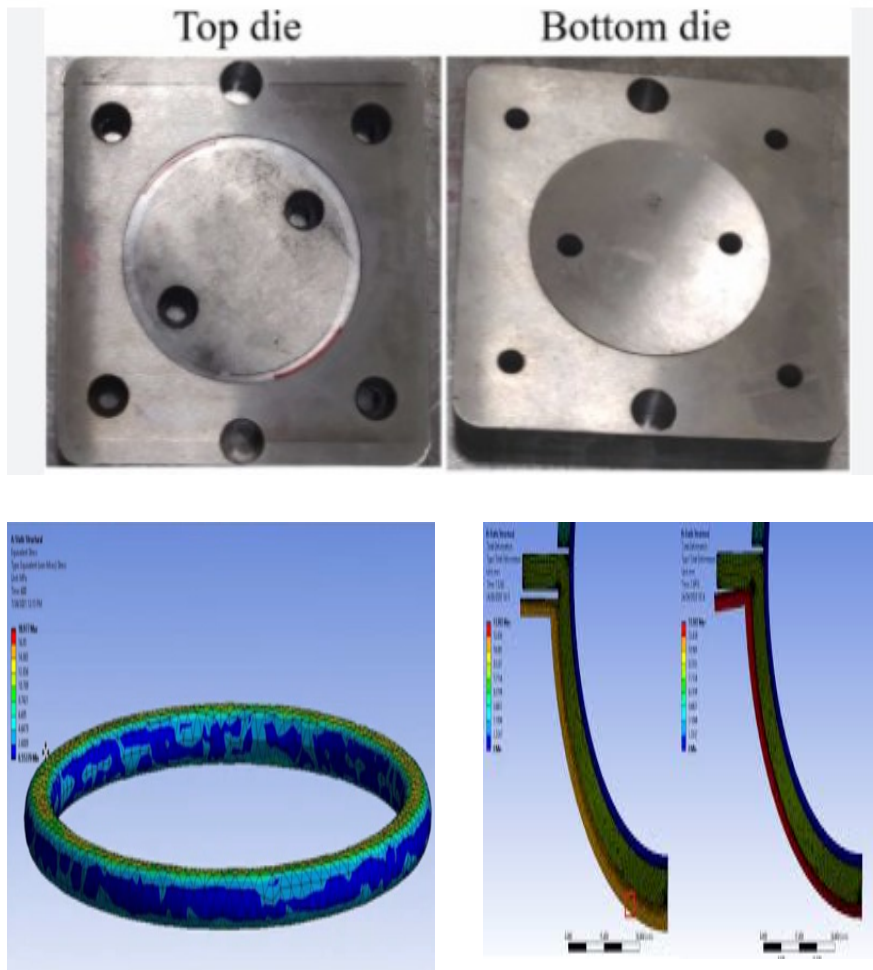
Finally, the research sets the stage for future investigations into material innovation and design improvements. By laying a strong foundation in the current study, researchers can explore new materials that may offer even greater performance under extreme conditions or innovative designs that push the boundaries of gasket technology. This ongoing inquiry is crucial for keeping pace with evolving industry needs and challenges.

Overall, the optimized 3L-gasket design represents a significant leap forward, showcasing enhanced sealing efficiency, durability, and cost-effectiveness. The combination of FEA validation and rigorous physical testing ensures that the design is reliable and ready for practical application. As the industry continues to evolve, this research will guide future developments in gasket technology, ultimately enriching the field and contributing to safer, more efficient industrial operations.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Making A Die Design And Analysis Of Rubber 3L-Gaskets

This breakdown ensures that funds are allocated effectively across different project components, ensuring the successful development and deployment of personal recommendation of topics by influence analysis within the allocated budget. This split-up covers personnel salaries, necessary equipment and software, field expenses, data analysis, and a contingency fund for unforeseen costs.

S.No	Utilization Verticals	Amount Spent (Rs)
1	Professional Cost (Expert and Technician)	2,50,000
2	Equipment and Software	1,20,000
3	Materials and Supply	3,10,000
4	Testing and Analysis	80,000
5	Documentation and Reporting (Preparation of user guides, technical documentation, and research papers)	40,000
6	Contingency	40,000
	Total	**8,00,000**

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
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ICICI Bank

Detailed Statement

Name:	PERI INSTITUTE OF TECHNOLOGY	A/C Branch: TAMBARAM, TAMIL NADU
Address:	MANNIVAKKAM,TAMBARAM,CHENNAI, 600048,TAMIL NADU,INDIA	Branch Address: ICICI BANK LTD., NO PLOT NO 27 & 29, AYYASAMY STREET, WEST TAMBARAM, CHENNAI - 600 045,KANCHEEPURAM|,TAMIL NADU,INDIA

A/C No:	139301002443	A/C Type:	SBA
Jt. Holder:		Cust ID:	572300579
Transaction Date from:	01/04/2022	Branch Code:	1393
Transaction Period:	From 01/04/2022 To 31/03/2023	IFSC Code:	ICIC0001393
Statement Request/Download Date:	19/08/2023		

Advanced Search

Amount from:	NA To NA
Cheque number from:	NA To NA
Transaction remarks:	
Transaction type:	CR

Sl No	Tran Id	Value Date	Transaction Date	Transaction Posted Date	Cheque no / Ref No	Transaction Remarks	Withdra wal (Dr)	Deposit (Cr)
1	C61831 468	01/Apr/202 2	02/Apr/2022	01/04/2022 04:49:03 PM		MMT/IMPS/209112850 321/BW2022040120121 /One97 Comm/Paytm Payments		1,19,400.00
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4	C67043 977	01/Apr/202 2	02/Apr/2022	01/04/2022 05:41:56 PM		MMT/IMPS/209115159 281/BW2022040120121 /One97 Comm/Paytm Payments		25,400.00
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Page 1 of 77

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