**IOTBASED PASSENGER CONTROLAND OPTIMAL PATHANALYSIS IN SMARTCITIES**

**A Project Report**

***Submitted in partial fulfillment for the award of the degree of***

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**In**

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November 2019

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY KODAKARA, THRISSUR**



**BONAFIDE CERTIFICATE**

This is to certify that the project report titled” **IOT BASED PASSENGER CONTROL AND OPTIMAL PATH ANALYSIS IN SMART CITIES** is the bonafide work of **“DELNA T.D (SHR16CS031), DHANYA P PAULY (SHR16CS032), DONA JOHNSON (SHR16CS033), JESTA JOSE(SHR16CS048)”** during their VIIth semester BTech in partial fulfillment of the requirements of the University of KTU, under our supervision.

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**ACKNOWLEDGEMENT**

We would like to express our immense gratitude and profound thanks to all those who helped us to make this project a great success. We express our gratitude to the almighty God for all the blessings endowed on us.

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Every project is successful due to the effort of many people. Our thanks and appreciations go to all our peers who had given us their valuable advice and support and pushed us into successfully

completing this project.

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**INSTITUTIONAL VISION**

To train the youth to be the leaders of tomorrow with apt skills, deep rooted sense of social responsibility, strong ethical values and with a global outlook to face the challenges of changing world

**INSTITUTIONAL MISSION**

With a high caliber faculty and an excellent infrastructure, we promote academic excellence, absolute discipline and sound practical exposure

**QUALITY POLICY**

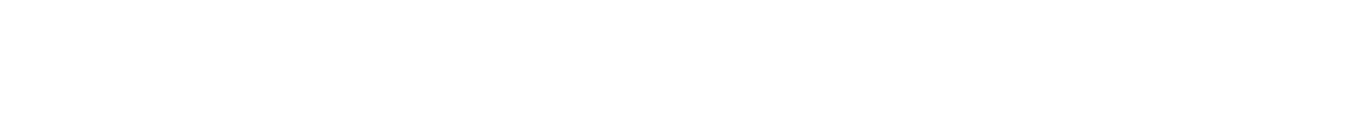
We at Sahrdaya are committed to provide Quality Technical Education through continual improvement and by inculcating Moral & Ethical values to mould into Vibrant Engineers with high Professional Standards.

We impart the best education through the support of competent & dedicated faculties, excellent infrastructure and collaboration with industries to create ambience of excellence

**Departmental Vision**

To be a nationally recognized centre for quality education and research in diverse areas of

computer science engineering with a strong social commitment

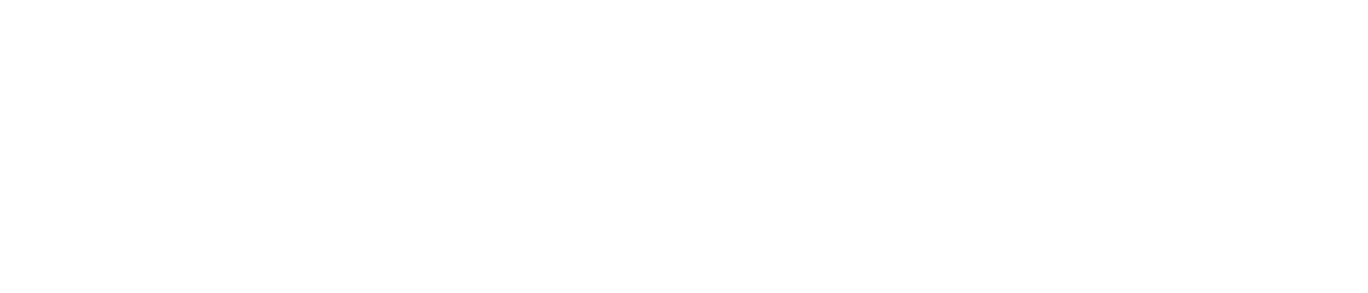


**Departmental Mission**

1. Impart relevant technical knowledge, skills and attributes along with values and ethics.

2. Enhance creativity and quality in research through project based learning environment.

3. Mould Computer Science Engineering Professionals in synchronization with the dynamic industry



requirements.

4. Inculcate essential leadership qualities coupled with commitment to the society.

**Programme Educational Objectives (PEOs)**

PEO1

To take up challenging careers in suitable corporate, business or educational sectors with multi-cultural working environment.

PEO2

To develop and design innovative and novel solutions to solve real life problems in the domain of computer science

PEO3

To be responsible citizens with good team-work skills, competent leadership qualities and holistic values.

**Programme Specific Outcomes (PSOs)**

PSO1

To mould students to understand, analyze and develop computer technologies in the areas such as algorithms, system software, multimedia, web design, big data analytics, and networking, for the efficient design of computer-based systems of varying complexity

PSO2

To enhance knowledge in the evolutionary changes in computing and apply standard practices and strategies in software project development using open-ended programming environments, in order to deliver a quality product for business success and meet the challenges of the future.

PSO3

To enable students to employ modern computer languages, environments, and platforms for creating innovative career paths to be an entrepreneur, lifelong learning and a zest for higher studies and also to act as a good citizen by inculcating in them moral values & ethics.

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**Programme Outcomes (POs)**

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

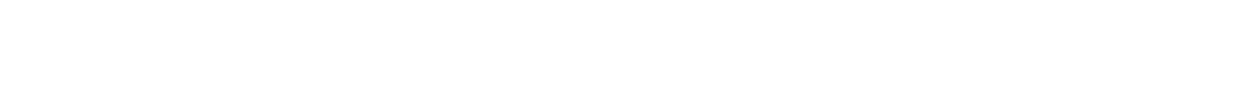
PO11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.



PO 12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**COURSE OBJECTIVES**

 To enable project identification and execution of preliminary works on final semester project.



**COURSE OUTCOMES**

The student will be able to

**CO1** Analyze a current topic of professional interest and present it before an audience

**CO2** Identify an engineering problem, analyze it and propose a work plan to solve it.

**CO3** Design a model with respect to recent technologies in the field of computer

Science.

**CO4** Describe, compare and evaluate different technologies

**MAPPING OF COs with POs**

PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12

CO1 3 3

CO2 3 2 2 3

CO3 3 2

CO4 2 2

# 1 - Weak Correlation 2 - Moderate Correlation 3 - Substantial Correlation

**MAPPING OF COs with PSOs**

PSO1 PSO2 PSO3

CO1 2

CO2 3

CO3 3

CO4 2 3

# 1 - Weak Correlation 2 - Moderate Correlation 3 - Substantial Correlation



**PROJECT OBJECTIVES**

 To detect overloading by using facial recognition

 To predict the optimal path using machine learning.

 To give easy and secured passenger transportation 0 in taxies

**PROJECT OUTCOMES**

The student will be able to

**PR1** Enhance the capability and understanding of good practice in facial recognition techniques.

**PR2** Increase the understanding of effective use of machine learning classifier in optimal path prediction.

**PR3** Introduce an approach to detect the optimal path and passenger overload.

**PR4** It can select the optimal path according to the users convenience.

**Mapping of PRs with COs**

**CO1 CO2 CO3 CO4**

**PR1** 3 2

**PR2** 1 3 2

**PR3** 3 2

**PR4** 2 2

**Avg** 1.5 1.25 0.75 1.5

# 1 - Weak Correlation 2 - Moderate Correlation 3 - Substantial Correlation



**ABSTRACT**

In the current context of smart city,Due to increasing growth of population and vehicles in smart and metropolitan cities people face a lot of accidents at the major traffic points of the business towns. In this method we consider the auto taxies as well as the public transport. We know that due to the overload in the vehicles the accidents are increasing day by day so using this method the number of accidents can be avoided or reduced.This system is introducing a deep learning approach to find the overload in vehicles. We are considering the luggage that is taken along with the passenger and an average weight is given for the load. Then it is combined with the number of passenger and system will predict whether the vehicle is overload or not. Mainly because of using deep learning concepts we can increase the speed of the process and the efficiency. The system will analyse the number of passengers using real time videos using



camera and system detect and compare with the overloading conditions to avoid accidents.

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**LIST OF ABBREVIATIONS**

RL Reinforcement Learning DP Dynamic Programming HOT High Occupancy Toll HOV High Occupancy Vehicle LED Light Emitting Diode

CNN Convolutional Neural Network

RPN Region Proposal Network

