# **Data Science Project Management Lab**



|  |  |
| --- | --- |
| **Roll No** | 235229119 |
| **Name** | NIVASHINI J |
| **Class** | II M. Sc DATA SCIENCE |

**PG Department of Data Science**

## Bishop Heber College (Autonomous)

## Tiruchirappalli 620017

**November 202**

**DEPARTMENT OF DATA SCIENCE**

BISHOP HEBER COLLEGE (AUTONOMOUS),

“Nationally Reaccredited at A++ Grade with a CGPA of 3.69 out of 4 in NAAC IV Cycle”

(Recognized by UGC as “College of Excellence”)

**(Affiliated to Bharathidasan University)**

TIRUCHIRAPPALLI – 620017

BONAFIDE CERTIFICATE

**Name:**

**Reg. No: Class:**

**Course Title:**

Certified that this is the bonafide record of work done by me during **Odd / Even**  Semester of

**2024 – 2025** and submitted for the Practical Examination on

**Staff In-Charge Head of the Department**

**Examiners**

**1.**

**2.**

**Contents**

**Abstract ...………………………………………………………………………………………… 01**

**Chapter 1 Introduction...................................................................................................... 02**

**1.1 General Introduction .....................................................................……………...... 02**

**1.2 Specific Introduction ............................................................................................. 02**

**1.3 Contribution ............................................................................................................ 03**

**1.4 Problem Analysis ................................................................................................... 03**

**1.5 Purpose of this Work ............................................................................................. 03**

**Chapter 2 Literature Review............................................................................................ 04**

**Chapter 3 Methodology ................................................................................................... 06**

**3.1 Overview of Blind Spot Detection........................................................................ 06**

**3.2 System Design……................................................................................................. 07**

**3.3 Methodology Steps................................................................................................. 07**

**3.3.1 Data Acquisition ........................................................................................ 07**

**3.3.2 Pre-processing .......................................................................................... 07**

**3.3.3 Blind Spot Localization ............................................................................. 08**

**3.3.4 Feature Detection and Description ......................................................... 11**

**3.3.5 Obstacle Detection …................................................................................ 13**

**3.3.6 Histogram of Oriented Gradients Feature Extraction ........................... 21**

**3.3.7 Machine Learning Classification with SVM ……………..….………........ 24**

**3.3.8 Real-Time Processing in BSDS …............................................................ 27**

**3.3.9 Accident Prediction by Hidden Markov Models (HMM)........................ 31**

**Chapter 4 Results ............................................................................................................ 37**

**4.1 Data Collection and Experimental Setup .......................................................... 37**

**4.2 RNN-Based Forecasting ...................................................................................... 37**

**4.3 Limitations ……………………..……………….…………………………………….… 45**

**Chapter 5 Analysis and Discussions ............................................................................. 46**

**5.1 Analysis ................................................................................................................. 46**

**5.2 Discussions ........................................................................................................... 46**

**Chapter 6 Conclusion and Future Work ...................................................................... 48**

**6.1 Conclusion ........................................................................................................... 48**

**6.2 Future Work ......................................................................................................... 48**

**References ……………………………………....................................................... 50**