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D.K.T.E. Society's Textile and Engineering Institute, Ichalkaranji. (An Autonomous Institute, Affiliated to Shivaji University, Kolhapur) Department of Information Technology 2019-2020 Project-I Report On Smart Guideline and Braking System for Safety Driving Under the Guidance Of Prof. V. V. Kheradkar Submitted By: 1. Sumit D Mhetre 19UIT652 2. Sandesh D Bhujavadkar 16UIT12063XX 3. Ruturaj V Lokhande 16UIT12028XX 4. Hanamant P Kattimani 16UIT12022XX 5. Pruthviraj S Patil 17UIT72010XX Prof. V. V. Kheradkar Prof. (Dr). D.V. Kodavade Prof. (Dr). P. V. KADOLE (Project Guide) (H.O.D) (Director) YEAR 2019-2020 DEPARTMENT OF INFORMATION TECHNOLOGY CERTIFICATE This is to certify that the project report entitles "Smart Guideline and Braking System for Safety Driving" is record of project work carried out in this college by, 1.Mr. Sumit D Mhetre (19UIT652) 2.Mr. Sandesh D Bhujavadkar (16UIT12063XX) 3.Mr. Ruturaj V Lokhande (16UIT12028XX) 4.Mr. Hanamant P Kattimani (16UIT12022XX) 5.Mr. Pruthviraj S Patil (17UIT72010XX) in fulfillment of the requirement for degree of BACHELOR OF TECHNOLOGY in INFORMATION TECHNOLOGY of SHIVAJI UNIVERSITY, KOLHAPUR. This project report is record of their own work carried out under my supervision and guidance during academic year 2019-2020. Prof. V. V. Kheradkar Prof. (Dr.) D. V. Kodavade [Project Guide] [Head of the Department] Prof. (Dr.) P.V. KADOLE [Director] DECLARATION We the undersigned students of B. Tech Information Technology declare that, the field work report entitled Smart Guideline and Braking System for Safety Driving written and submitted under the guidance of Prof. V. V. Kheradkar is our original work. The empirical findings in this report are based on the data collected by us. The matter assimilated in this report is not reproduction from any readymade report. Date: Place: Ichalkaranji. Members Signature 1.Mr. Sumit D Mhetre 2.Mr. Sandesh D Bhujavadkar 3.Mr. Ruturaj V Lokhande 4.Mr. Hanamant P Kattimani 5.Mr. Pruthviraj S Patil Acknowledgment With great pleasure we wish to express our deep sense of gratitude to prof. V. V. Kheradkar for his valuable guidelines, support and encouragement in completion of project report. Also, we would like to take opportunity to thank our head of department Dr. D. V. Kodavade for his co-operation in preparing this project report. We feel gratified to record our cordial thank to other staff members of Information Technology department for their support, help and assistance which they extended as and when required. Thank you, 1.Mr. Sumit D Mhetre 19UIT652 2.Mr. Sandesh D Bhujavadkar 16UIT12063XX 3.Mr. Ruturaj V Lokhande 16UIT12028XX 4.Mr. Hanamant P Kattimani 16UIT12022XX 5.Mr. Pruthviraj S Patil 17UIT72010XX Abstract Now-a-days accidents are mostly caused by delay of the driver to hit the brake or by the negligence by the driver. The project aims to develop a system which can operate automatically with the help of high Ultrasonic sensors based on relay circuit and some changes in traditional braking system and slow down the vehicle automatically in emergency situation. The resulting system can achieve measurements with high accuracy and improved short distance measurement also. This distance measurement is used to control smart braking system for safety applications. The actual intelligence of system is developed on raspberry pi microcontroller. The Ultrasonic sensors are the eyes of this system, which are cheaper and the system comprises of a less demanding hardware. INDEX CONTENTS PAGE 1. INTRODUCTION 1.1 Problem Statement 1.2 Need of the project with motivating example 1.3 Objective of Project 1.4 Limitations and Scope 1.5 Timeline for project 1.6 Cost of project 2. BACKGROUND STUDY AND LITERATURE REVIEW 2.1 Technology review 2.2 Literature review 3. REQUIREMENT ANALYSIS 3.1 Functional requirements 3.2 System Requirements 3.2.1 Hardware Requirements 3.2.2 Operating System Requirements 3.2.3 Application or Web server requirements 3.2.4 Storage requirement 3.2.5 Tools and Technologies Requirements 4. SYSTEM DESIGN 4.1 Architecture Diagram 4.2 Use case Diagram 4.3 Algorithmic description of each module 4.4 Data Flow Diagram 4.5 Sequence diagram 4.6 Class Diagram 4.7 Activity Diagram 5. IMPLEMENTATION 5.1 Environmental settings for running the module 5.2 Implementation Details 6. SOFTWARE TESTING 6.1 Unit test cases generation and its testing reports 6.2 Integration test cases generation and its testing reports 6.3 System test cases generation and its testing reports 7. OUTPUT SCREEN 8. PERFORMANCE ANALYSIS 9. APPLICATION 10. CONCLUSION 11. INSTALLATION GUIDE AND USER MANUAL 12. PROJECT ETHICS 13. REFERENCES 1

APPLICATION 10. CONCLUSION. 11. INSTALLATION GUIDE AND USER MANUAL 12. PROJECT ETHICS 13. REFERENCES 1. INTRODUCTION Nowadays, a vehicle is one of the most important need of human being. Every time human needs vehicle to accomplish his work. But these vehicles are not smart enough to handle the situation such as accident. So, these vehicles require some smart moves. At Present, vehicles are often equipped with active safety systems to reduce the risk of accidents, many of which occur in the urban environments So, this system measures the distance between two vehicles and if that distance is less than the threshold range then it slows down the vehicle. In recent years there is increase in computing power have brought computer vision to consumer-grade applications. As computers offer more and more processing power, the goal of real-time traffic sign detection and recognition is becoming feasible. Some new models of high-class vehicles already come equipped with driver assistance systems which offer automated detection and recognition of certain classes of traffic signs. Traffic sign detection and recognition is also becoming interesting in automated road maintenance. 1.1 Problem Statement To implement the system which provide guidelines to the driver for safe driving and slow down the speed of vehicle emergency situation. 1.2 Need of the Project with motivating example As, traffic is increasing day-by-day across the globe, the accidents are happening at high level. Always, driver is not responsible for accident instead, there is some kind of failure that leads to the same. To avoid these accidents there is need of smart kind of system that monitors all the time and guides the driver to do some necessary actions. Volvo, Honda companies have such kind of system.

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