

CHAPTER 1

PREAMBLE

1.1 INTRODUCTION

Automatic road sign detection and tracking is an important task in a driver assistance system. Its importance lies mainly on the vast amount of car accidents that happen each year all over the world, caused by the driver's inability to process all the visual information they receive while driving. Road signs characterized by color and shape are primarily for guiding, warning, and regulating car drivers. Each color and shape of the road signs conveys a particular meaning.

Accidents occur frequently in highways, which will create a heavy loss for the victim's families as well as for the society. Mainly accidents occur due to the unawareness of the driver about the obstacles that may be present on the highway route.

Road facilities are a major concern in the developed world. Recent studies show that one third of the number of fatal or serious accidents are associated with excessive or inappropriate speed, as well as changes in the roadway (like the presence of road-work or unexpected obstacles). Reduction of the number of accidents and mitigation of their consequences are a big concern for traffic authorities, the automotive industry and transport research groups.

One important line of action consists in the use of advanced driver assistance systems (ADAS), which are acoustic, haptic or visual signals produced by the vehicle itself to communicate to the driver the possibility of a collision. These systems are somewhat available in commercial vehicles today, and future trends indicate that higher safety will be achieved by automatic driving controls and a growing number of sensors both on the road infrastructure and the vehicle itself.

1.2 OBJECTIVES

This project is developed in the vision of preventing accidents in the highways. A prior intimation is given to the driver about the obstacles present in the highways such as steep curve, bends, bridges, temporary work on progress etc. to avoid mishaps. Automatic dim and dip and pedestrians safety.

1.3 METHODOLOGY

Microcontroller based driver assistant system is an application specific project, which is used to avoid the accident in the highway. An embedded system is developed which consists of a microcontroller, RFID card, RFID reader, LDR and IR sensor.

This project is implemented by placing RFID card in sign board and RFID reader, LDR and IR sensor in vehicle.

1.4 MOTIVATION

Nowadays people are driving very fast; accidents are occurring frequently, we lost our valuable life by making small mistake while driving (school zone, hills area, and highways). So in order to avoid such kind of accidents and to alert the drivers and to control their vehicle speed in such kind of places the highway department have placed the signboards. But sometimes it may not be possible to view that kind of signboards and there is a chance for accident. These problems motivated us to take up this project.

1.5 LEARNING ASPECTS

This project encompasses various aspects of electronic device usage such as microcontroller of Atmel family, serial communication and their respective integrated development environment software Keli vision, embedded c for appropriate execution of codes. As such it has been an invigoration learning experience and also satisfies the unbound curiosity regarding the advance driver assistant.

1.6 BENEFITS

- Advance driver assistant system control the lot of accidents possible is avoided in highway.
- If any obstacle found in front of vehicle, speed will be reduced.
- High, low beam of headlights is controlled automatically.