CHAPTER 1

Introduction

1.1 Introduction

Today, one of the most worldwide occupations is helping and supporting visually impaired person. Those people live in a limited environment and have difficulty to sense what happen around them, which reduces their activities in several fields, such as education and transportation since they depend only on their own intuition. In addition, as the population ages, the number of VIPs has increased. At present, statistic showed that 285 million people are visually impaired worldwide 39 million are blind and 246 have low vision. In most physical environments, the visually impaired have difficulty accessing information about transport stops, terminals, vehicles, schedules, maps, and directories, which prevent them from using public transport effectively. Hence, we need to make their lives more comfortable by introducing a system that helps them enjoy transportation services independently and freely like ordinary people, without relying on others.

Most of existing systems have almost the same architecture. However, our system will have an added new feature in addition to the same components of the existing ones. The existing systems include a hardware part that involves a radio frequency reader (RF) which is placed in the user module. Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders .This reader will detect RFID tag (also called transponder) which consists of an Integrated circuit (IC) and small antenna, and will be placed in the bus after being informed of the existence of VIPs in the RF communication. Then, a vocal message will be announced to VIPs in the bus station. The reader is mainly based on the Radio Frequency Identification (RFID) which is a technology that uses wireless radio frequency transmission between a specific person and a device.

This project focuses on a bus identification system using Radio frequency identification (RFID) technology. The RFID system uses tags, through which information embedded on the tags are read by RFID readers. The proposed system eliminates the need for help on whom the blind person relies for guidance to board the required bus to reach the destination.

1.2 Motivation

The main encouraging factor for the application of technology for visually impaired people is the policy measures adopted by the western countries for social inclusiveness. Lot of development work in these countries is attributed to the above mentioned policy measures and grants invested for supporting this work. In the year 2003, international conference dedicated to the theme of application of technology for all aspects of sight loss showcased many such devices.

The majority of the system developed so far focus on maintaining spatial orientation which is a major challenge for people with visual impairment. There is the need of systems for providing blind people with information on where they are, hazards that might be in the way, and a description of what lies in their surroundings.

1.3 Scope of the project

The scope of this system is to develop a low-cost system that assist the blind and visually impaired without the help of sighted person. The main objective is to provide a talkative assistance to blind people. Current navigation device for the visually impaired focus on traveling from one location to another. This focuses on designing a device for visually impaired people that help them to travelling independently also it must be comfortable to use. The proposed device is used for guiding individuals who are blind or partially sighted. Moreover, it provides the alert sound to avoid obstacles based on ultrasonic sensors. An emergency button is also added to the system.

1.4 Problem Description

The population of India has reached 120 Cr. Of those 8.90 Cr people are visually impaired. 9 of those can't walk independently. 7% of them make the use of guide cane and remaining 3% off them make the use of guide dog. But a guide dog would also be a burden for them as they can move only to the places that dog is trained. This mainly focuses on the visually impaired people who cannot walk independently in unfamiliar environment. The main aim of project is to develop a system that helps the blind people to move independently in the unfamiliar environment. There are several methods and devices used to guide visually impaired persons. Several research works are being performed by many institutions throughout the world to offer the best navigational robot in terms of cost effectiveness. This gives brief review on various navigational aids for blind individuals.