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AN EYE FOR BLIND

*A Project Report submitted in partial fulfillment of the requirement
for the degree of*

**Bachelor Of Engineering
in
ELECTRONICS AND COMMUNICATION
ENGINEERING**

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Chapter 1

INTRODUCTION

Today the number of blind people (either born or victims) in India and other parts of the world like Africa have already crossed millions. Today in this rapidly changing and moving society, it requires every individual to be physically fit. Blind people belong to that part of society who are often ignored and are found incapable of carrying out a given task. They are even made to think that they are incapable of living an independent life. In this way blind people form a considerable part of our society are looked upon as unproductive measures.

Here is an attempt to see what the blind people are enabled to their routine with as much ease as their mates, if not the Herculean ones. The device is a prototype; by using which the blind person can move freely move about in an organization. Whenever a blind person enters an organization all he has to do is that he has to select his destination by pressing the respective button. Whenever a destination is selected the vocal messages which the earphone produces will guide him gradually to his destination. The vocal messages include the basic directions like move right, left, straight, turn etc.

The organization will be divided in to discrete blocks each given a RF (radio frequency) transmitter which a unique code has embedded on it. The RF transmitter will be in the form of tag and continuously emanates the code in form of RF wave. The device what the blind person will be holding contains the receiver which receives the code transmitted by transmitters and forwards it to the processor. As said each code is unique for every code the processor outputs THE CORRESPONDING VOCAL MESSAGE TO GUIDE THE PERSON TO his destination. For every block as a reference point, every other block is connected by a unique shortest path. Upon selecting a particular destination, depending upon the position of the person that unique path gets activated by the processor. The device will be provided to the blind person in the form of 'stick' which has receiver, processor and other necessary devices embedded within it.

1.1 Objectives of our Project

- 1) To enable blind people visit and move around any organization independently and easily.
- 2) Its an effective assistance for a blind (numbering thousands in India) whenever they visit an organization.
- 3) Our main objective is to make blind people think that they are also the part of the modern society and need no assistance in order to move freely.

4) Feeling 'independent' is the greatest happiness a blind person can get. And providing visual independence to the blind people is our prime goal.

1.2 Methodology

With the help of our product, blind people will get a perception of big organization as a collection of several small organizations inside their mind. Percept of small organization is easy to imagine for a average blind person.

To achieve this, we are taking the help of Radio Frequency Identification (RFID). RFID is the use of an object applied to or incorporated into a product for the purpose of identification and tracking using radio waves. Some tags can be read from a distance of several meters and some beyond the sight of reader. RFID tags contain at least two parts. One is an integrated circuit for storing and processing information. The second is an antenna for receiving and transmitting the signal.

BLOCK DIAGRAM

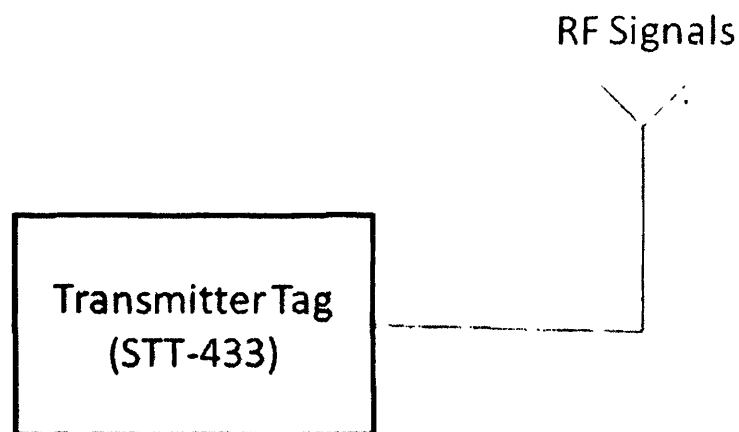


Figure 1.1: Transmitter Section

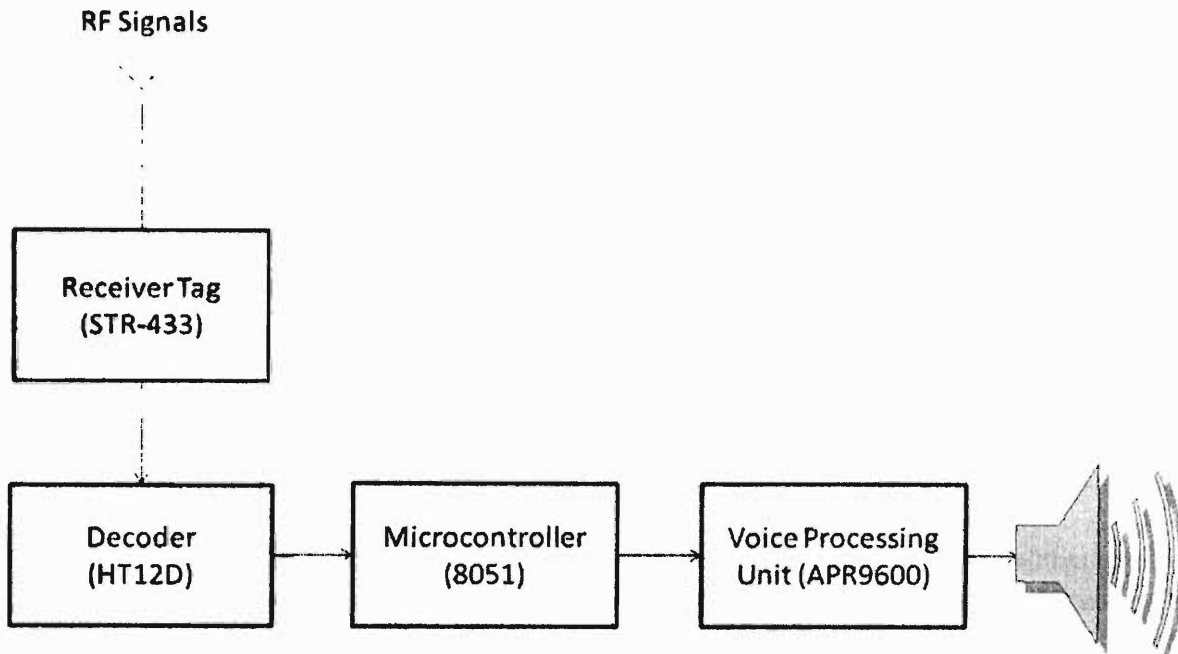


Figure 1.2: Receiver Section

Radio Frequency Transmitter (RF Tx)

Each transmitter section consists of encoder that is nothing but **HT12E IC**, where E stands for Encoder, RF module, an antenna and a 5V battery for powering the transmitter.

STT433 is a transmitter with operating frequency 433 MHz. From each transmitter, we will be transmitting unique coding pattern. This data will be encoded and it will be sent via antenna. This transmitted RF signal has a definite boundary beyond which the codes cannot be detected.

Radio Frequency Receiver (RF Rx)

In receiver (**STR433**) section we are using FM receiver modules, **HT12D IC** as a decoder, a microcontroller, voice processing unit and an earphone. The transmitted RF signals when come in contact with the receiver antenna, it receives and sends them to the decoder (HT12D) which decodes them to the original form that is the code at the transmitting end and sends it to the microcontroller. The microcontroller is further interfaced with a voice processing unit.

Voice Processing Unit

The voice processing unit is pre-recorded with details of all the ways and directions which will be helpful for the blind people to reach their destination. As the microcontroller (**Atmel 8051**) gets specific input, its code gets executed, then the microcontroller triggers corresponding voice data from the voice processing unit. This voice data contains the details of route/directions for which the transmitted code is specified for. This provides an automatic vocal announcement of the direction of the destination, where the person has to reach. All this happens without any external assistance. This system can be implemented for different organizations by employing several no of different RFID tags. The voice processor used is **APR9600**.

Earphone (Output Device)

The whole organization is subdivided into several parts/organizations. When a blind person enters the organization, he will be given a receiver with an earphone attached. Whenever the person comes in the range of particular transmitter, the destination corresponding to that transmitter will be told into the ears of blind person through the earphone.

1.3 Thesis Organization

Among the various contents mentioned, *chapter 1* gives overall introduction of the project, methodology etc. The technical aspects of the project such as details of ICs used and the technology are included in *chapter 2*. Further in *chapter 3* the overall working of project is included. The results, the relevant conclusions are included in *chapter 4* and finally the scope of the project (technological advancement) and the suggestions are included in *chapter 5*.