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## Bus recognition for the visually impaired person

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### ABSTRACT

*This paper depicts a transport acknowledgement framework which points in simplicity of voyaging and development of visually impaired individuals with guide of sensor organize. For them to travel from one place to another place is a difficult task, so they need special requirement to travel. The blind person gives the input about his destination using android app. The latitude and longitude of present location of the blind person will be noted in the microcontroller of blind unit with the help of GPS antenna. The stored information in the microcontroller of blind unit is transmitted to bus unit through Zigbee system. Sign made in the transport that visually impaired individuals display in the station. Voice model and APR 9600 audio play back systems are used to update and inform the blind person about the bus arriving and reaching destinations. Audio output is generated by the voice synthesizer. The expected outcome of the project is to obtain on easy navigation system for blind people.*

**Keywords:** ARM 7, APR 9600, Voice module, Bluetooth, GPS and IR sensor.

### 1. INTRODUCTION

Visual deficiency confines the kind of transportation a man can utilize and thus the visually impaired may endure extra postpone contrast with an ordinary individual due to the constrained transportation decision [1]. open transportation is a standout amongst the most broadly utilize transport implies for dazzle people. Unfortunately open transportation isn't a simple intent to utilize and access by daze individuals. Daze individual experience issue in perceiving and evaluating the landing of transport at the transport station. In addition can, they can't read the transport number to distinguish the right transport to board. Dissimilar to ordinary individuals, dazzle individual requires bolster in directing them contently to maintain a strategic distance from mishap and inadmissible delay in their arrangement and gathering which may influence their execution as dynamic individuals in the society [1].

In today's populace, measurements demonstrates that there are 285million individuals are outwardly debilitated around the world.39 million are visually impaired and 246 have low visions.[2]. Subsequently we have to make their lives agreeable by presenting a framework that encourages them to

Utilize transportation autonomously and uninhibitedly [2]. The trouble of utilizing open transportation by daze individual will make them more disconnected unfit to carry on with their typical life.

Route in new place is an issue for the outwardly disabled. So application that help rout in new place are exceptionally useful for the visually impaired individuals [3]. Coordinated of current innovation, for example, position acknowledgements impediment recognition, and inserted frameworks obliges the outline of a frameworks to help the visually impaired individuals to explore effortlessly [3].

A few frameworks had been proposed for controlling visually impaired individuals. Here we will simply specify the most related one's to the season of our task. one of the frame work is a focal declaration frame work in the light of Bluetooth innovation [1]. In this frame work Bluetooth gadget was introduce in both the transport and visually impaired gadget i.e., PDA block which are associated with handling framework. At that point when a transport approach the visually impaired individual, the two Bluetooth gadget of that transport and visually impaired individual associate with each other. at that point a declaration message contains the transport data will be reduce a through a speaker. Yet, there are two impediments in this framework it permits association of two gadgets just on the double and it can loose association in specific conditions.

Another assistive framework is an android application utilizing transport acknowledgement framework which helps the general population in versatility utilizing voice notice and can be utilized by every one of the travelers. This application depends fundamentally on the GPS framework when it can utilize compass of the cellphone base individuals can interface with application through voice. At the point, the application will the list of the accessible pathways to the goal and the client gets the reasonable one from application, the client can know the closest station to the present place and that time required for the transport to arrive. Subsequent to the boarding the transport, application will advice the client required goal. So exceptionally bolster for individuals with incapacities, particularly dazzle individuals.

## 2. PROPOSED SYSTEM

The proposed framework contains wireless sensor network with Zigbee for dazzle ID in the transportation, and further more GPs for goal acknowledgements. It has following highlights

- For the blind people travelling makes simple.
- Can travel independently without any others need.
- Ease of use
- Vibration alert for bus driver.
- Notification to the blind people through audio playback system.
- Voice based input and output.

### A. Block diagram

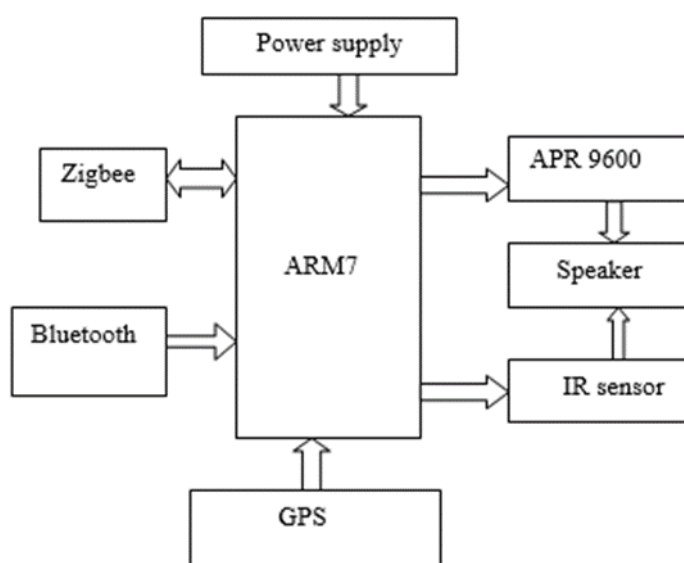


Fig.1 Blind Unit

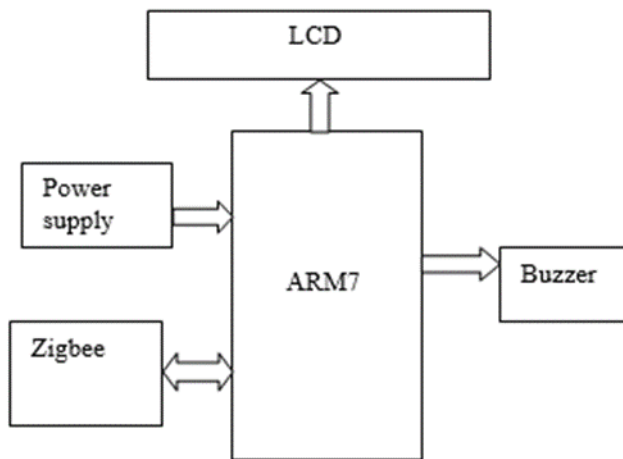


Fig.2 Bus Unit

### **B. Working Description**

#### **Step 1:**

The Zigbee in the bus module receives signal which is transmitted by the Zigbee in the blind unit. The transmission and reception of the signal takes place within the 30 meters range so that the blind person can easily get the information about the arrival of bus.

#### **Step 2:**

The blind person gives an audio input of the destination where person want to go through the android application. The given voice input about the destination is converted into text by voice module translator and sends it to microcontroller.

#### **Step 3:**

By using GPS the current location of the blind person will trapped and latitude and longitude of the particular location is stored in the microcontroller of the bus unit. By using Zigbee the stored data transmitted to the bus module Zigbee and also displayed on the LCD. The buzzer starts vibrate, so that the bus driver gets the information about the presence of blind person in the bus station.

After getting the request from the blind person bus driver will acknowledge about the arrival of the bus. When the latitude and longitude of the current location of the blind person matches with the stored information in the microcontroller in the bus module the bus driver will get to know about the presence of the blind person in that particular location and he stops the bus. Blind person will board the bus.

#### **Step 5:**

After boarding the bus the latitude and longitude will change as per the location, so that when the destination is nearby, the audio playback system (APR9600) will give the voice message to the blind person through speaker and he get to know about the arrival of destination.

#### **Step 6:**

The added feature is obstacle detection using IR sensor. An IR sensor is utilized to detect obstacles in the path. When the IR sensor detects an obstacle, the user get an output saying an obstacle has been detected and blind person is instructed on how to avoid it. The instructions are given out by the audio play back circuit. This is how the obstacle detection in the system takes place.

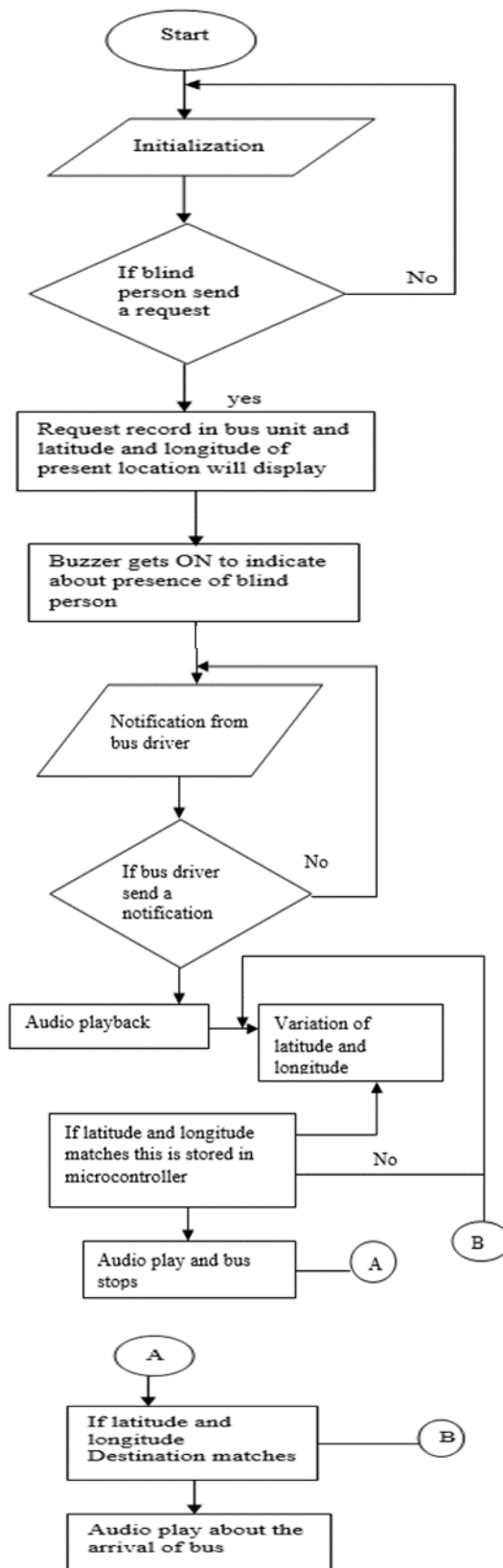
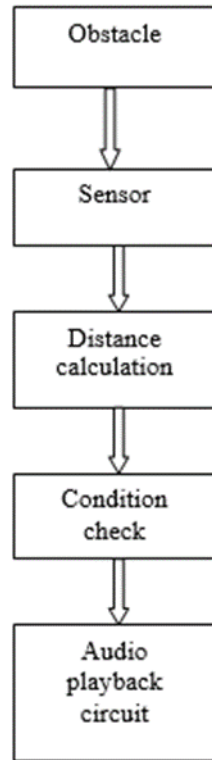


Fig.3 Flow chart of blind and bus unit



**Fig.4 Flow Chart of obstacle detection unit**

### **3. RESULT**

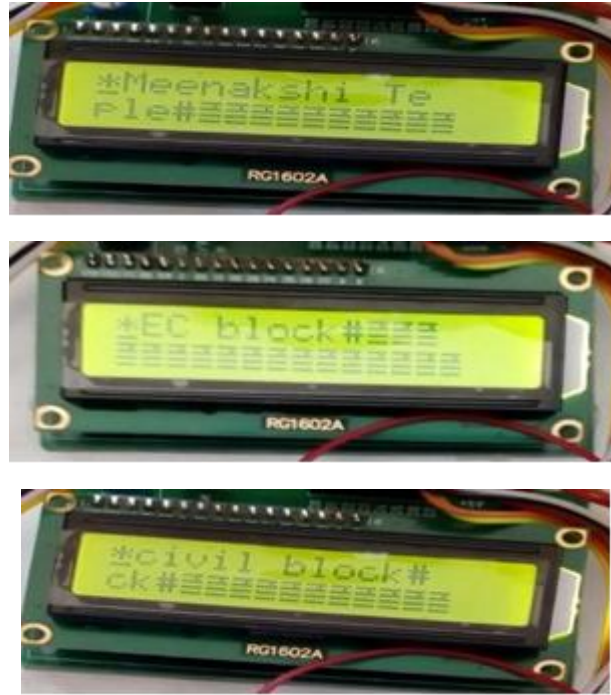


**Fig. 5 Blind Unit**



**Fig. 6 Bus Unit**





**Fig. 7 Experimental results**

#### **4. CONCLUSION**

We can conclude that idea to help the blind people to avoid accidents and dependencies on others to travel has been proposed. Since the measurement demonstrates that the quantity of visually impaired individuals over the world is expanding, uncommon administrations ought to be given to dazzle individuals keeping in mind the end goal to go from his area to his coveted goal freely with no trouble. The prototype of “Bus Recognition System for Blind People” has been successfully designed and implemented.

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