INTELLIGENT BUS STOP

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ABSTRACT

This is due to the nature of the smaller bus stops located in near residential areas. Busses that stop at the smaller stops do not announce their destinations and merely display their destination on the front of the bus. This leaves the blind no way of identifying the right bus. The aim of this project is to help blind people to identify busses coming to a bus stop. Initially the microcontroller is programmed with unique code for bus formats along with the bus number. When a bus arrives to the stop the microcontroller on detecting the bus RF number will give corresponding bus number announcement using the audio driver IC. Busses are identified only within a 10m range.

To identify the busses, an RFID tag and RFID receiver is used as the communication medium between the bus and the bus stop. Each bus is placed an RFID tag which stores a unique encoded 10-digit ID that will be sent to the RFID receiver when it is within range at a frequency of 125 KHz. The decoded 10-digit ID is then sent to the main processing unit which centers on a PIC16F876A microcontroller. The PIC16F876A is used because it is a more RF oriented microcontroller which is suitable for receiving the serial transmissions from the RFID receiver. The microcontroller compares the received ID with the ID stored within its database for a match. Once the ID is matched, the bus will then be identified and the microcontroller will proceed to send the signal to the APR9600 voice playback to announce the bus number and the destination through a speaker.

Furthermore, the system is then tested to analyze its functionality and reliability and the results obtained shows that the system is able to realize its aim and objectives. This project can be implemented at any bus stop with a power supply. However, there are limitations to this project as the storage database of the busses is limited and the range of the RFID receiver is very small. These can be improved by implementing modern methodology on the hardware of the devices with these shortcomings.

Keywords: RFID receiver, RFID tag, microcontroller, APR9600