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RESEARCH ARTICLE

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PASSENGER FRIENDLY TRANSPORT SYSTEM USING ZIGBEE AS COMMUNICATION MEDIUM

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ABSTRACT
This project is intended to design passenger friendly transport system using Zigbee as a communication medium. This system works on Demand Response Transit(DRT) which gives the real time location of the bus. In the bus module when the bus starts and is going in a particular route and reaches other bus stop the driver will press that particular route key in the bus. This information will be sent to other nearby bus stops by using communication medium called Zigbee. Coming to the bus stop module when the passenger presses key of route then the details like availability and location of the bus will be displayed on the LCD. There is another feasibility of showing the seats availability in the bus by using IR sensors. This paper discuss how to make the journey easy and comfortable using wireless technology and IR sensors.
Keywords: TarangZigbee module, ARM LPC2148,IR sensors,LCD.

INTRODUCTION

Before several years on account of increase in people, improvement associated with total well-being of people, establishing financial system and also higher level cars open public expectations include increased significantly. In our issue on the open public transfer tourists don not need data to pick the bus for his or her own desired destination. The tourists usually are uninformed using the avenues that this unique bus follows. Tourists perhaps don't realize time essential with the bus to succeed in the particular bus route. Tourists deal with a lot of issues within selecting the best bus route which will make them reachdestination. Wireless communication plays a vital role in streams associated with Military, navy and also medical. In the last many decades the usage of interacting collected from one of point to various other is finished by means of Walkie Talkie. After that following your improvement in the field of technology different units for instance GSM Modem, Net, WIMAX and so on usually are deployed for your conversation purposes.

Public Transport System for the travelers in people in general transport framework utilizes a remote innovation called Zigbee. Zigbee is more productive, precise and less extravagant. This exploration is not just to add to the productive open transport framework however to make accessible of good alternative when these framework contrasted and the other customary framework and can be utilized where there is no web association, 3G , WIMAX or different remote correspondence frameworks accessible .

This paper depicts the productivity and competency of Zigbee. Up till now the utilization of Zigbee was conveyed just in the interior operation of vehicle or indoor applications. This paper gives the

thought of making utilization of Zigbee as bury vehicle i.e. vehicle to vehicle correspondence or vehicle to framework correspondence. The Zigbee gadgets is utilized to impart between the Bus module and the Bus stop module the utilization of Zigbee will minimize the aggregate expense of the framework as Zigbee is ease than different remote specialized gadgets. The force utilization of Zigbee is likewise low as contrasted and different remote specialized gadgets, for example, Wi-Fi. By the capacity of Zigbee to devour low power it can be utilized in rugged locales where force is central point to be considered. For the most part GPS is utilized to track the vehicle's area and the data is overhauled in web for getting it.

As the data is put away in web, it can be used by everybody, except there is no utilization in giving the data to everybody as the general population who are utilizing the particular area must be benefitted. In this framework, the same information, for example, transport course and transport area is acquired without utilizing GPS and web as a part of a system.

As of now, the urban transportation framework has been created as a result of the landing of the remote innovation. The general population transportation framework will dispatch and order the general population about the open activity vehicles naturally alongside the time of vehicles by means of the electronic transport stop loads up in this manner diminishing the travel time of travelers. The execution of the Efficient Public Transport framework must be under the help of creative thoughts and the backing of advanced strategies. The friendly transportation framework has a major spot in the whole urban regions. The intelligent friendly transportation in use of ZigBee and IR will turn into a dynamic region of research applications.

System Description:passenger friendly transport system consists of two modules namely

- Bus stop module
- Bus module

Bus stop module: The most important part of passenger friendly transport system is a Bus stop module. Bus stop module makes the utilization of microcontroller which is further interfaced with device relegated for specific undertakings. One of device that is interfaced with microcontroller is Zigbee which has been utilized to get the correspondence i.e. information transferring between Bus and Bus stop Module. Microcontroller utilized as a part of the module is LPC2148 which is interfaced with the Display. Showcase utilized as a part of the module is 16X2 alphanumeric presentations. It shows the stop name the bus landed at. Bus module will likewise show the most recent transport that is going to land at the Bus stop.

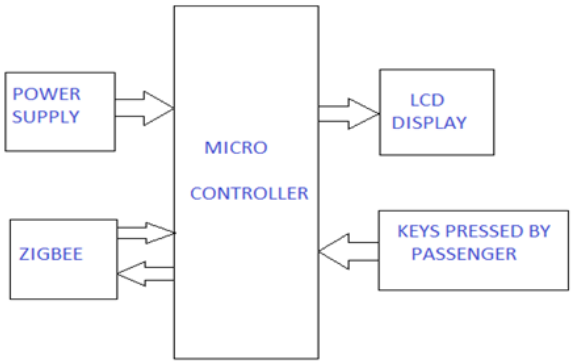

fig.Bus stop Module

Bus module: The second module that is available in the passenger friendly transport system is the Bus module. Transport module additionally makes the utilization of NXP Microcontroller LPC2148 which is in charge of controlling every device that are interfaced to it. Zigbee transceiver is utilized to make the correspondence between bus stop module and Bus module. Zigbee is associated with the microcontroller utilizing serial interface.

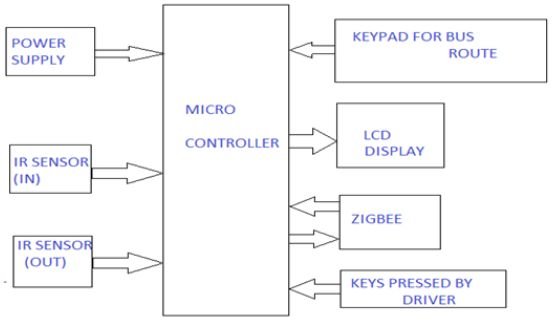

Fig. Bus Module

IR sensors connected to micro controller will sense the number of persons entered in to the bus and number of persons went out of the bus. Keys are used to select the bus route and stop. LCD display will

display all the process performed in bus by the bus driver.

Operation: Bus driver starts the bus and updates the route and the bus stops continuously. The IR sensor will provide the information regarding seats in that bus by sensing the incoming and out-going passengers. All these information will be communicated to the bus stop module through zigbeewhich is low cost, low power device and the operating frequency is 2.4G Hz. Coming to bus stop module when the passenger requests for the route it checks whether the bus is available in that route. If the bus is available it will display the route number bus stop number and the seats in the LCD display. If the bus is not available in that particular route for which the passenger have requested then it shows that bus is not available. By using this process passengers can easily decide which bus to get in and reduce the waiting time.

FIG. FLOW DIAGRAM BETWEEN BUS MODULE AND BUS_STOP MODULE

Zigbee Communication between Bus and Bus Stops are the major concern of this paper. The reason Zigbee is given priority over the other short range wireless technologies like Wi-Fi is that in this research only few bytes of data is to be transferred using short range wireless technologies, no heavy data like Audio or Video is transferred so Zigbee seems to be a good alternative to Wi-Fi. With heavy data comes more power consumption which can be a concern in areas where power is not easily available.

RESULT

The figure below shows theBus stop module. In the LCD display it is displaying the route number for the passengers to request.

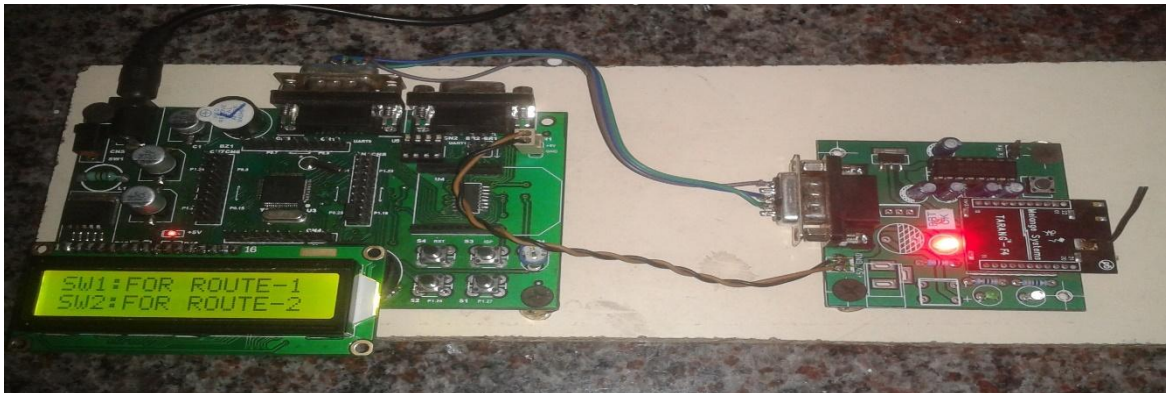

Fig. Bus stop module

Figure below shows the bus module. In the LCD it is displaying the route and stop number and seats available.

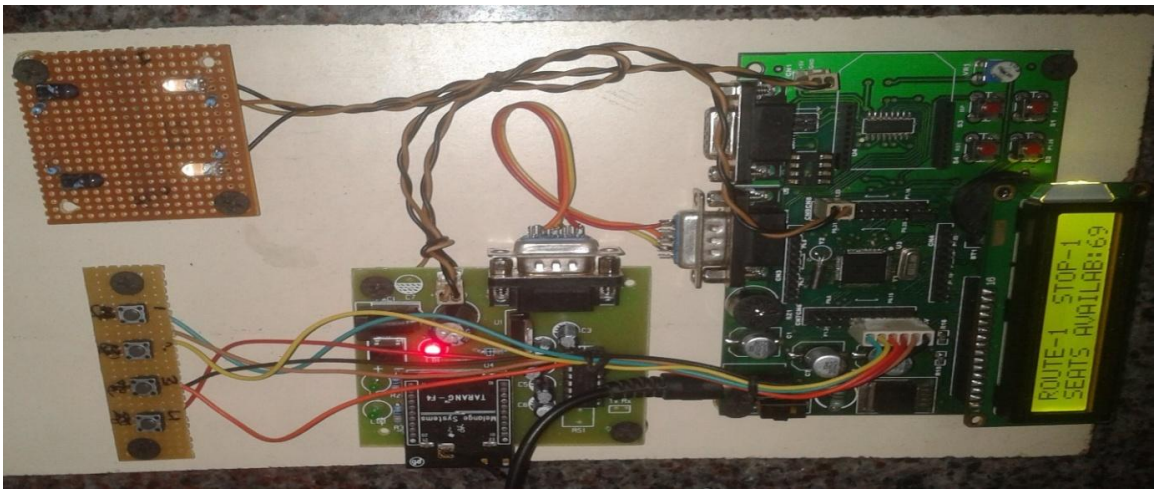

Fig. Bus Module

Conclusion

The Efficient Public Transport System is a reliable and cost effective system. By the use of Zigbee for the communication purpose the cost of the system reduces greatly. Power consumption also reduces due to Zigbee. Urban areas have a lot of requirement of this system as the traffic density is high in cities. The system is able fulfil the demand of passenger by providing them the real time information of the bus and its location. The system is cost effective. All these make the Efficient Public Transport System Rich and Reliable

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