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GREEN THE WAY ACCORDING TO THE DENSITY OF VEHICLES IN TRAFFIC SIGNAL USING ZIGBEE TECHNOLOGY

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ABSTRACT

The increasing of vehicle population in all the developing and developed countries are involved in a serious change within the existing traffic signalling systems. The most widely used machine-controlled system uses easy timer based mostly operation that is not sufficient for non-uniform traffic. The Advanced automation systems in testing use image process techniques or advanced communication systems in vehicles to communicate with signals and elicit routing. This may not be implemented in few countries as they encourage be complicated and pricy. The concept projected in this paper involves use of wireless device networks to sense presence of traffic close to junctions and thus routes way traffic supported traffic density within the required direction. This system doesn't require any system in vehicles thus may be enforced in any traffic system simply. The present system uses wireless networks technology to sense the density of vehicles and a microcontroller based mostly routing formula for traffic management

Keywords— Zigbee, microcontroller, IR sensors

I. INTRODUCTION

Due to increase in the population in India there is a huge raise vehicles use that which causes increase in traffic on roads causing a major problem. The increase in traffic is mainly in major cities there causes a lot of problems. Generally, traffic signs provide the driver various info for safe and economical navigation Automatic recognition of traffic signs is, therefore, important for machine-driven intelligent driving vehicle or driver assistance systems. The indication of traffic signals in the crowed are most difficult. Due to long traffic jams in major junctions causes wastage of time. As such, it is becoming terribly crucial to device economical, adaptive and efficient traffic control algorithms that facilitate and guarantee quick and sleek traffic flow that utilize new and versatile technologies. Here we are using Zigbee technology for the control of traffic.

II. EXSISTING SYSTEM

The most of the traffic control system in the developed and developing countries is all about timer based system. This system consists of a predefined time which has been set for predefined time for each particular road at

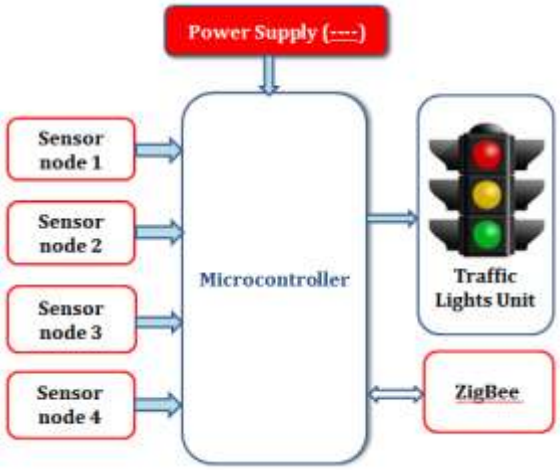
junction points. This existing system is better for low traffic, and when heavy traffic is occurred it will be complicated. This system works based on the timer input and processing the traffic signals to find which road has dense traffic is not possible with this system. This system fails during environmental interaction like rain or fog. Also this system fails when heavy traffic is occurred on onside road.

III. PROPOSED SYSTEM

From the existing system drawback can be fulfilled by this proposed system. We develop a system such that the traffic signals will operate according to the flow of number of vehicles in particular roads based on the regular density. ZigBee protocol is used by central device for sending and receiving information. The receiver controller which contains zigbee interfaced with microcontroller receives the input signal from the PC to control manually when heavy traffic interrupted the normal flow of traffic and it provides green signal based on the density of traffic. The controller makes use of the discussed algorithm to perform the intelligent traffic routing.

IV. BLOCK DIAGRAM

Transmission Section:



Receiver section:

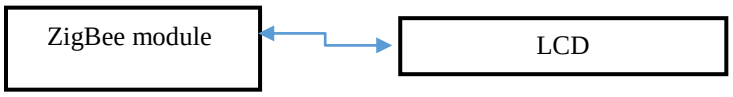


Fig 1: Block Diagram

It consists of various software and hardware modules. The above block diagram shows the evaluation of hardware components blanketed in the device.

LPC2148 Microcontroller:

The LPC2148 micro controller belongs to ARM 7 family. In the LPC2148 the LPC is defined as Low Power consumption. The Lpc2148 board is based on a thirty two-bit ARM7TDMI-S with real-time emulation. It consists of 8 kilobytes to 40 kilobytes of on-chip static RAM and 32 kB to 512 kB of on-chip flash memory; 128-bit huge interface allows high-pace 60 MHz operation, In- system Programming (ISP), 32-bit timers external event counters PWM unit and watchdog, Low strength Real-Time Clock (RTC), it consists of more serial interfaces which includes two UARTs, rapid I2C-bus.

Zigbee Module:

Zigbee is the latest technology for communication purpose. Zigbee is a module which transmits or receives data wireless. Here no external cables are needed to transfer data. The data can be transferred to a limited distance. Here this Zigbee range is around 100 meters. It is based totally on IEEE 802.15.four requirements and it's far created by ZIGBEE ALLIANCE.

IR sensor:

IR sensors are abbreviated as Infrared sensors. This sensors can sense up to a limited distance that is about 2 cm. An infrared detector is a radiation instrument that's accustomed sense in surrounding by emitting and/or detection infrared. It's conjointly capable of measure heat of an object and detective work motion. Infrared waves aren't visible to the human eye. In the spectrum, infrared is that the region having wavelengths longer than visible radiation wavelengths, however shorter than microwaves. The IR region is or so demarcated from zero.75 to 1000μm. The wavelength region from zero.75 to 3μm is termed as close to infrared, the region from three to 6μm is termed mid-infrared, and therefore the region beyond 6μm is termed as so much infrared. Infrared technology is found in several of our everyday product. As an example, TV has an IR detector for decoding the signal from the remote. Key advantages of infrared sensors embody low power necessities, straightforward electronic equipment, and their transportable feature.

V. SOFTWARE

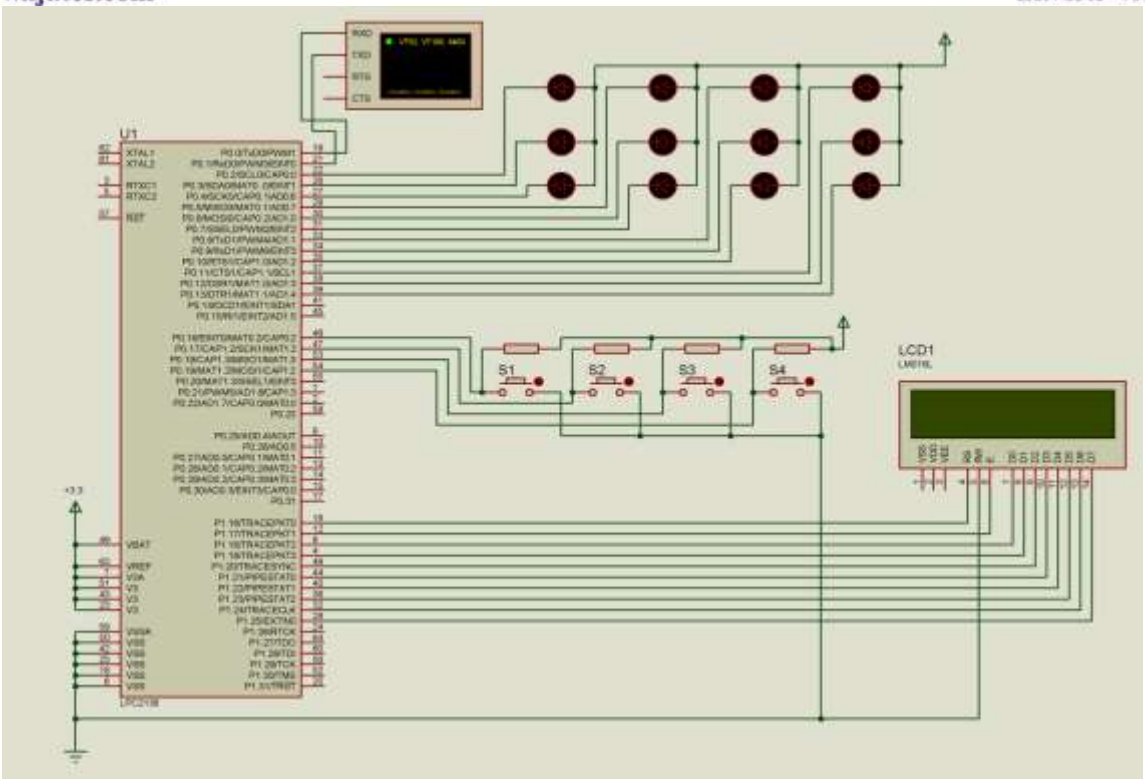
In thispresent project, we use LPC2148 microcontroller and we had to use the following software's and equipment to program it.

1. Keil uVision
2. Flash Magic

The Keil micro Vision is an IDE for Embedded c programming language. In this IDE, we need to import required utilities and libraries according to the controller. This IDE is very less difficult and in user friendly way to apply. It consists of all the C/C++ compilers, assemblers, and debuggers in it. Here we need to generate a hex file to run the microcontroller. The hex file consists of only binary numbers which is dumped in to the microcontroller. The flash magic is a programming software. The C/C++ software is written in IDE may be processed into Hex document i.e. hex file. By using the hex file we will dump the file into microcontroller and perform the task with respective application.

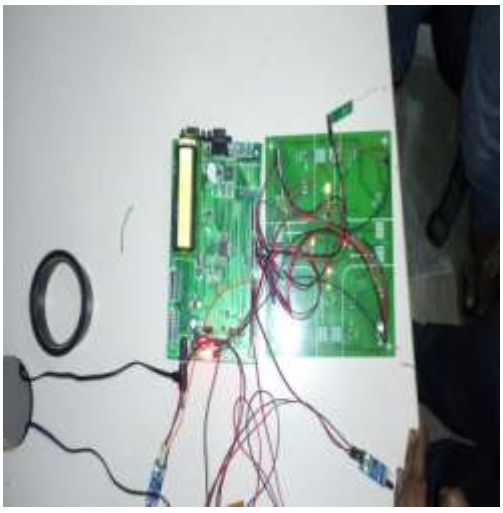
VI. WORKING DESCRIPTION

The present project describes that the problems raised in Traffic and the overcome of the existing system. In this project we are using the wireless communication technology i.e Zigbee communication. By using sensor nodes at the traffic junction we can detect the maximum level density of traffic in a particular area.IR sensors are placed on either sides of the road these sensors are used for detecting the traffic density level at junction point. When the IR is detected the signal is sent through Zigbee communication to the control room and then a required signal is given to the junction point. This communication is used around hundred meters at the signal point. It is the cheapest technology compare to other wireless technologies.



VII. RESULTS

The sensors connected to circuit or controller will be initialized and will be read out from various sensors connected to the controller and sends the same data to authorized PC through ZigBee communication. It is placed in traffic at the major junctions.



VIII. CONCLUSION

The present planned system for machine-controlled traffic signal routing using Wireless detector Networks is an advanced version to many existing systems. The wireless sensors nodes create a stable system at each

intersection and creating directly implementing in the intersections where having heavy density of vehicles. It is also cheaper and the use of varied systems of sensor nodes are often altered based on the necessity of the traffic. This project can be extended to next level by implementing priority based vehicles moving in the traffic.

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