THICKNESS FOUNDED CIRCULATION LIGHT CONTROL BY ARDIUNO AND IR DEVICES

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Abstract :

I want to make a project through which everyone can relate to it. Also in our day to day life I am always observing at the crossing of roads that in some lane there are lot of traffic compared to others lane Also due to timing based the lighter dense roads are sometimes empty due to which many people start crossing the road but due green signal in that lane vehicle. HC-SR04 and calculate the distance.

IndexTerms -DENSITY BASED TRAFFIC LIGHT CONTROL USING ARDIUNO AND IR SENSORS

INTRODUCTION

In today's high speed life , traffic congestion becomes a serious issue in our day to day activities. is consumed without any fruitful outcome. Therefore, in order to get rid of these problems or at least reduce hem to significant level, newer schemes need to be implemented by bringing in sensor based automation

MOTIVATION FOR PROJECT

So, From this we got the motivation to work on this project. At the starting of the project we were not able to visualize it practically, but slowly we are getting information from the Internet and taking help of some of Any random person won't be able to visualize our efforts put in the completion of the project because after completion it looks a bit easy.

LITERATURE SURVEY

Roads are providing better access to services, ease of transportation and freedom of movement to people .But in metropolitan cities traffic congestion is increasing rapidly, it results in chronic situation in dense downtown areas.

PRESENT TRAFFIC SIGNALING SYSTEM

IR sensors count the obstructions and provide an idea about the traffic density on a particular lane and feed this response to a controller unit which will make the necessary decisions as and when required.

BLOCK DIAGRAM
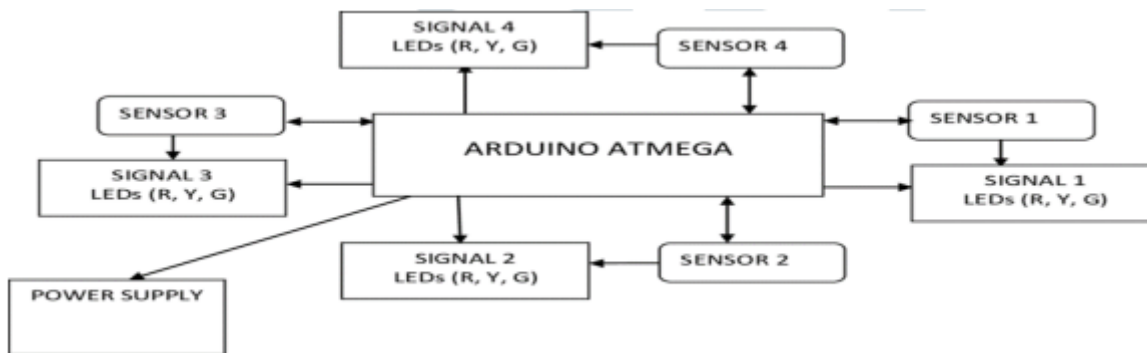
The sensor's and signal led's are connected to Arduino and Arduino work as per the code Arduino mega 2560- The Mega 2560 is a microcontroller board based on the ATmega2560. Signal leds - these are the three leds red, yellow, green placed in a traffic signal sequence connected with 220 ohms resistor Sensor-the ultrasonic sensor It sends an ultrasonic pulse out at 40kHz which travels through the air and if there is an obstacle or object, it will bounce back to the sensor.

LIST OF COMPONENTS

Arduino Mega 2560 HC-SR04 Ultrasonic Sensor Red Led ,Green Led ,Yellow Led 220 OHMS Resistors Jumper Cables Multipurpose PCB

CIRCUIT DIAGRAM
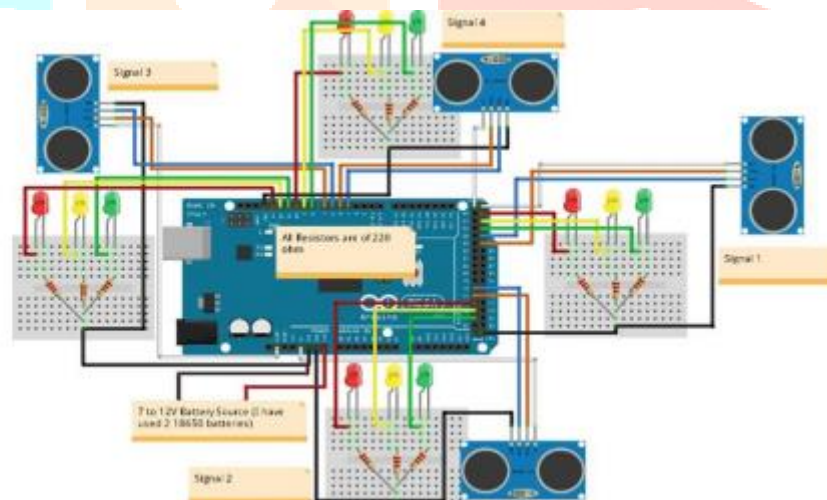
Four ultrasonic sensors are interfaced with the We will then convert this time into distance travelled by using S = v*t.Ultrasonic sensor HC-SR04 interfacing with Arduino LED's are connected to the Arduino through the 220 ohm resistors. It is necessary to use the resistor with the LED. The resistor limits the current flowing through the LED. If you won't use it then the LED will burn out soon. You can use the resistor of value from 100 ohm to 10k ohm with the LED. Larger the value of LED, lesser the current will pass.

The working of the project is divided into three steps; If there is traffic at all the signals, then the system will work normally by controlling the signals one by one. If there is no traffic near a signal, then the system will skip this signal and will move on to the next one. For example, if there is no vehicle at signal 2, 3 and currently the system is allowing vehicles at signal 1 to pass. Then after signal 1, the system will move on to signal 4 skipping signal 2 and 3. If there is no traffic at all the 4 signals, system will stop at the current signal and will only move on the next signal if there will be traffic at any other signal

PROJECT CODE

We have included the time rone library. We will have to use the delay in between the traffic signal so we can't read from the sensors continuously. Therefore we have used this library which will allow us to call a function in which we will read from the sensors continuously and in the loop function, we will control the traffic signals. #include In the setup function, we have used the Timer1.initialize (microseconds) function. This must be called before you use any of the other methods of time rone library. "Microseconds" is actually the period of time the timer takes. It is optionally to specify the timer's period here. The default period is 1 second.

if(S3 int signal1[] = {23, 25, 27}; int signal2[] = {46, 48, 50}; int signal3[] = {13, 12, 11}; int signal4[] = {10, 9, 8}; int redDelay = 5000; int yellowDelay = 2000; volatile int triggerpin1 = 31; volatile int echopin1 = 29; volatile int triggerpin2 = 44; volatile int echopin2 = 42; volatile int triggerpin3 = 7; volatile int echopin3 = 6; volatile int triggerpin4 = 5; volatile int echopin4 = 4; volatile long time; // Variable for storing the time traveled volatile int S1, S2, S3, S4; // Variables for storing the distance covered int t = 5; // distance under which it will look for vehicles. void setup(){ Serial.begin(115200); Timer1.initialize(100000); //Begin using the timer. This function must be called first. "microseconds" is the period of time the timer takes. Timer1.attachInterrupt(softInterr); //Run a function each time the timer period finishes. // Declaring LED pins as output for(int i=0; i

RESULTS AND DISCUSSION

The circuits when implemented separately works as per the desired output however during integrating all, output fluctuates and shows different response every time. This could be a problem of loose connections of the wires or internal wiring. This project lists down the results realized from the practical work and examines whether ideas / solution approaches recommended in research are met by the practical implementation. For this project the main communication is by using IR technology. From the series of experiments we have conducted the following results were obtained: • Traffic can be cleared without any irregularities. • Effective time management.

FUTUE SCOPE

Few of the challenges that should be taken into account are listed as follows • Low range IR sensors may not be an answer for long range signaling system.

Safety first: it has to be absolutely made sure that no compromise is being made on safety issues, i.e. a secondary stand-by set-up that can switch over from automated to manual mode ,should be provided in case of sensor or circuit malfunctions so that vehicular crowd does not go beyond control. As part of future advancements, the traffic check post may be connected by wireless transmitters by which the crossings ahead may be an anticipation of the traffic that is approaching. This may be achieved the connecting the sensor network with GPS connectivity and short wave radio transmission signals. This will act as a feed forward system making the signaling system even more smooth and congestion free.We will also update this system with modern technology so that.

CONCLUSION

We believe that this may bring a revolutionary change in traffic management system on its application in actual field environment. . So it can be regarded as universe of the study.Non-financial firms listed at KSE-100 Index (74 companies according to the page of KSE visited on 20.5.2015) are treated as universe of the study and the study have selected sample from these companies. The study comprised of non-financial companies listed at KSE-100 Index and 30 actively traded companies are selected on the bases of market capitalization.And 2015 is taken as base year for KSE-100 index.

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