ABSTRACT:

Due to rapid rise in automobiles and because of large time delays between traffic lights, controlling the traffic becomes a major task. This becomes a severe problem in many cities across the world. So in order to rectify this problem, we go for DENSITY BASED TRAFFIC LIGHT SYSTEM.

Normally, a conventional traffic light works on a fixed time concept allotted to each side of the junction which cannot be varied and junction timings allotted are fixed. In some cases, higher traffic density occurs at one side of the junction which demands longer green time as compared to standard allocated time. This system is done using a ARDUINO UNO interfaced with sensors at the junctions. It changes the junction timing automatically to accommodate movement of vehicles smoothly avoiding waiting time at junction. The IR sensors are used to detect the density at the traffic signal.

KEYWORDS: ARDUINO UNO, IR sensors, LED'S

I. INTRODUCTION:

Transportation has always a crucial part of human civilization. As there is a huge increase in number of vehicles, managing the traffic becomes a smart task. This paper provides results in avoiding excess delays, promote safety and reduce environmental pollution.

II. BLOCK DIAGRAM:

![Figure 2](image)

HARDWARE IMPLEMENTATION:

A. ARDUINO UNO:

![Figure 3](image)
The Arduino UNO is a microcontroller board based on the ATmega328. It is made of 14 digital input output pins in which 6 can be used as PWM outputs. And also it has 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power pack, and a reset button. It has everything needed to support the microcontroller. It is so simple that it is to be connected to computer with a USB cable or power it with a AC- to DC adaptor or battery to get started.

B. IR SENSOR:

IR sensor is an electronic device which senses the objects present around the surroundings. The principle is it transmits an infrared signal, this signal strikes the body of an object and the signal is bounced which is received at the infrared receiver.

The system is less cost and efficiency is more because the IR sensors are used for counting the number of vehicles at each way of the junction. The Arduino UNO used is a simple prototype model which works more efficiently. As the IR sensors emit the IR radiations, when an object crosses this sensor it will start to count the number of vehicles in each way and proportional output is given by the Arduino UNO board. In this Paper, it shows the density measurement is done with the help of IR sensors.

III. SOFTWARE AND ENVIRONMENT:

A. ARDUINO SOFTWARE

In order to program the Arduino board, we need to use IDE provided by Arduino. The Arduino IDE is based on Processing programming language and supports C and C++.

IV. CONCLUSION:

This paper may help in the future to be free from traffic problems. As the components used in the system is less cost and efficiency is more because the IR sensors are used for counting the number of vehicles at each way of the junction. The Arduino UNO used is a simple prototype model which works more efficiently.
As the IR sensors emits the IR radiations, when an object crosses this sensor it will start to count the number of vehicles in each way and proportional output is given by the Arduino UNO board.

REFERENCES: