Final Presentation On

"DENSITY BASED AUTOMATIC TRAFFIC LIGHT CONTROL SYSTEM"

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Overview

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Introduction

- Automatic Traffic Light control system.
- Controls traffic lights based on Traffic Density.
- Improves on the current time based system.
- Uses Ultrasonic sensor to detect traffic density.
- Manual control incase of emergency.

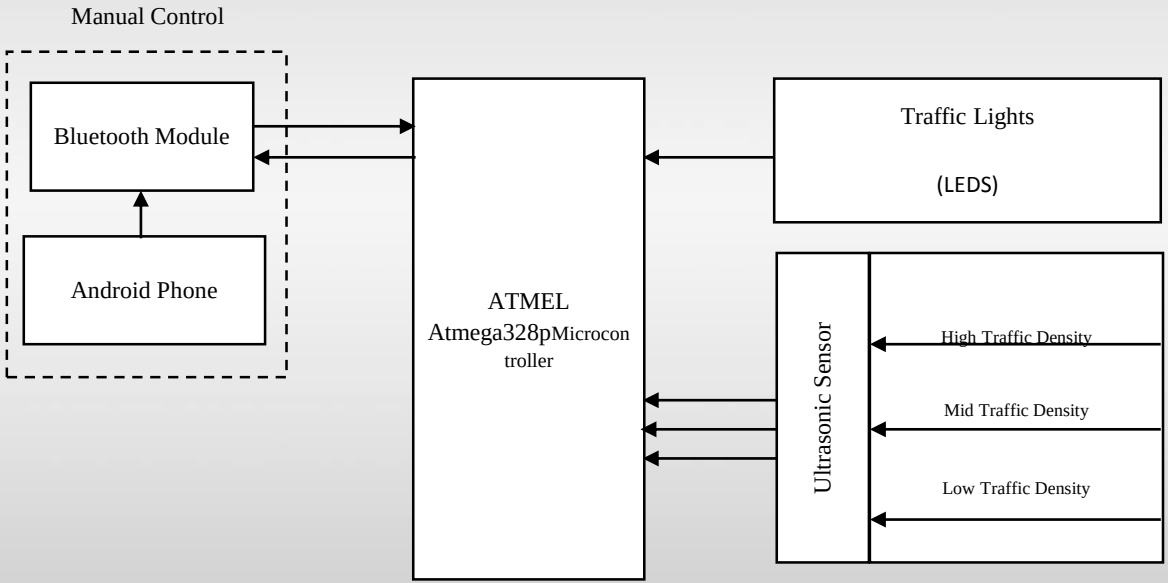
Objective

- To develop density based traffic light control system.
- To determine traffic density using ultrasonic sensors.
- To develop traffic light algorithm based on traffic density.

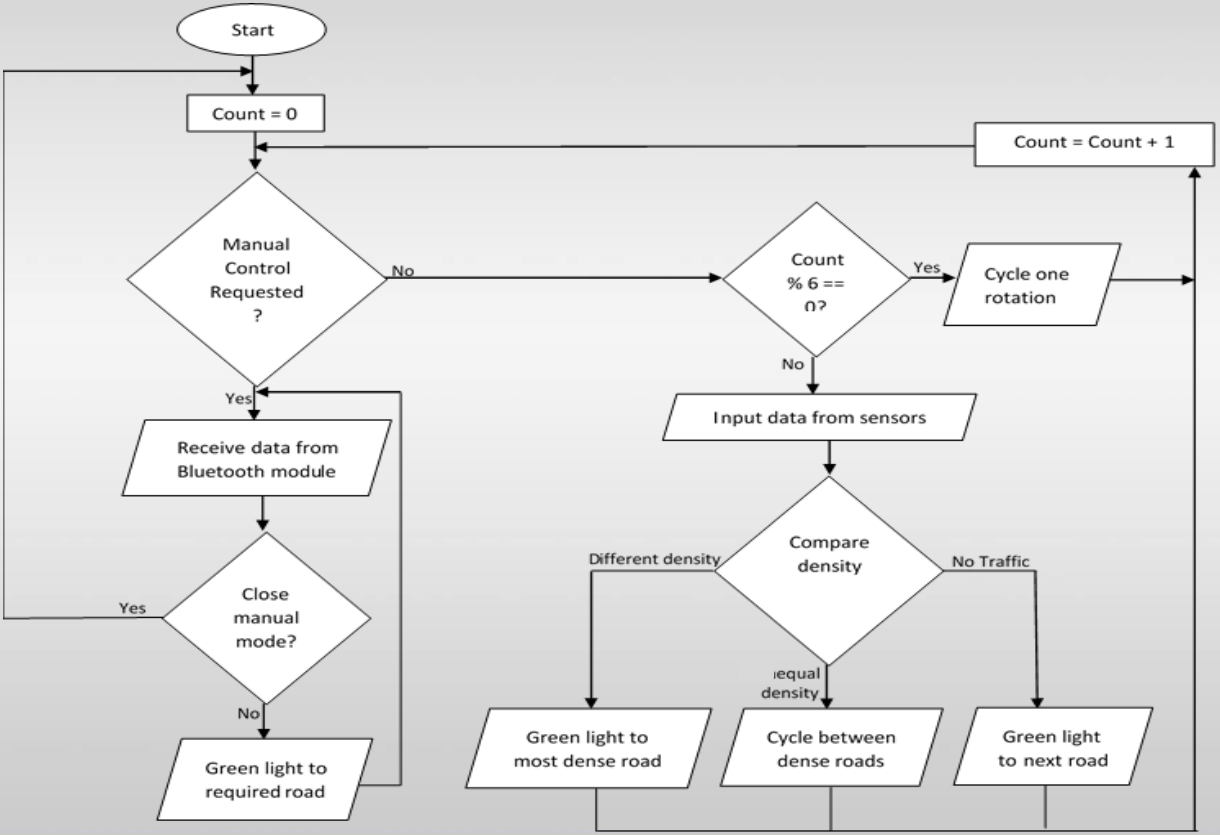
Literature Review

- Has been implemented since the early 20th century.
- Implemented in countries like Indonesia, China, USA.
- Uses Ultrasonic sensor instead of IR sensor.
- Sensors determines the vehicles density on the road.

System Overview



Methodology



Application

- For smooth traffic control at urban areas
- To reduced manpower for controlling traffic
- To reduce road accidents

Result And Analysis

- Accurate detection of traffic using utrasonic sensors
- Accurate traffic light switching
- Manual control using bluetooth when needed
- Bluetooth control using Smartphone and open source apps

Problems Encountered

- Difficulty in developing effective light switching algorithm.
- Gradual increase in time for switching the traffic lights.
- Sensor found to be unresponsive at close range.

Limitations

- Absence of automatic detection of emergency vehicles
- Cannot detect occurance of Road Accidents
- Depends on Manual Control in Emergency situations
- Utlrasonic sensors must be well protected from environmental factors.

Future Enhancements

- Use of High sensitive camera or Satellite
- Use of Advance algorithm like image processing
- Automatic detection of Emergency Vehicles
- Automatic detection of Road Accidents
- Record of Vehicle movements

Conclusions

- This improved technology makes the regulation easy and enhance the flow of traffic.
- It reduces the human effort in traffic management.

Snapshots

- Designing PCB

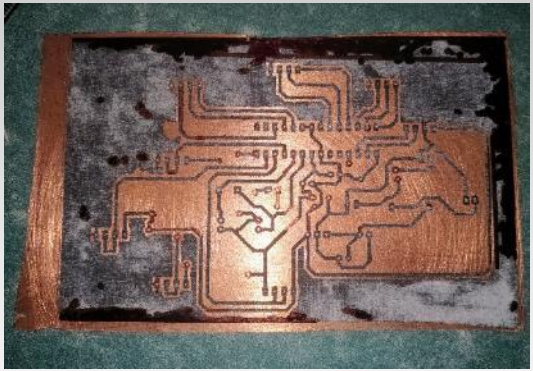


fig 1

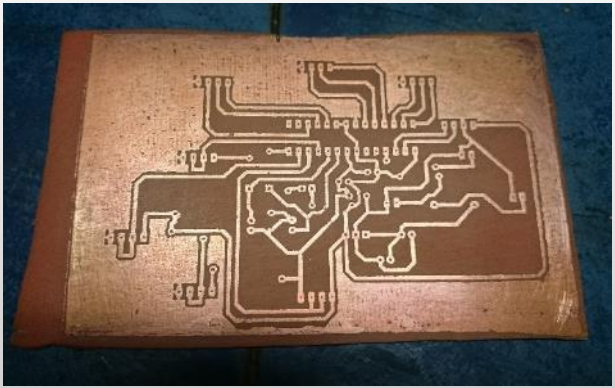


fig 2

fig 3

Snapshots

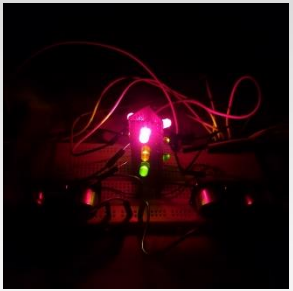


Fig 4: Testing LEDs and sensors

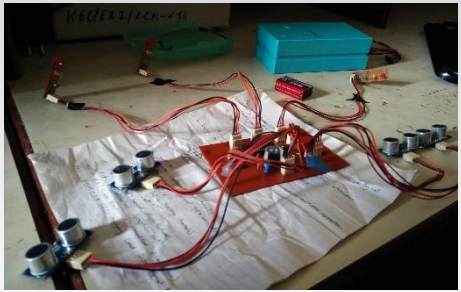


Fig 5: Testing of Complete circuit and its Output

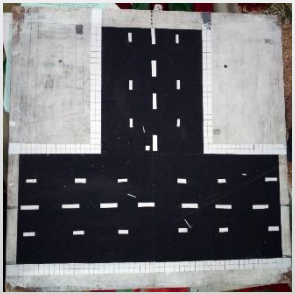


Fig 5: Construction of Road Model

Fig 7: Placement of Sensors and Traffic lights on the Model

References

- [1] Sinhmar Promila, “Intelligent Traffic Light and Density Control using IR Sensors and Microcontroller”, International Journal of Advanced Technology & Engineering Research (IJATER) ISSN NO: 2250-3536 VOLUME 2, ISSUE 2, March 2012.
- [2] Das Rupak,” Study OF PLC and its Application in A Smart Traffic Control System”,National Institute of Technology:Rourkela,2013.

Thank You!!!