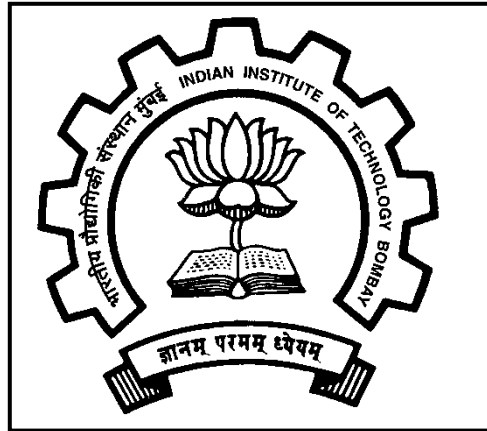


Institute Technical Summer Project-2015



Project Abstract

Smart Traffic Signal

Team: Optimus Primates

Group Members:

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➤ **Introduction:**

Traffic jams are one of the worst nightmares that most of the Mumbaikars can have. Traffic jams today have become an issue of great concern as leads to many serious problems like air pollution which in turn causes many medical problems, excessive use of fuel and waste of precious time. The exhaust materials from automobiles include harmful gases like Nitrogen Oxides, Carbon Monoxide, Sulphur Dioxide and Suspended Particulate Matter. It has been estimated that transportation accounts for 24% of the air pollution.

Keeping these serious problems in mind, we aim to design a traffic signal controller that will automatically adjust its signal duration according to current traffic density. A different form of this project has been implemented in some countries. But we plan to design the project more in accordance with Indian scenario.

➤ **Future Scope:**

The smart traffic signal can be used in the areas where traffic density is very high. As the signal duration will be automated, more preference would be given to the lanes with higher traffic thus avoiding the traffic jams and further problems.

➤ **Final Demonstration.**

It is planned to make a controller that will control the real traffic signal. This controller with proper permissions can be installed in the IITB campus and vehicles may be arranged to demonstrate the final working of the project. The project is aimed for only 2 lanes of road at most due to design constraints. In future, we plan to implement it for more number of lanes. But if there are any problems in issuing the permissions from the civic authorities, we plan to demonstrate the project on smaller scale with toy cars. It should be noted that method used will be the same.

➤ **Timeline Of The Project:**

Week 1: Acquiring the components, learning their specifications and use.

Week 2: Commencing the assembly of the project, mostly mechanical part.

Week 3: Continuing the mechanical part and coding the microcontroller.

Week 4: Final assembly of the project and commencing the final tests.

Week 5: Analyzing the test data, rectifying the problems that may arise by making necessary changes in the project.

➤ **Learning Outcomes Of The Project:**

At present, we only have knowledge about basic electronics like transistors, flipflops, registers, ADC's and to some extent knowledge about microcontrollers like arduino and ATMEGA2560. Through this project, we intend to learn about working of some other microcontrollers like Raspberry Pi and electronic gadgets like ultrasound sound transmitter, pressure transducers, different sensors, actuators, etc.

➤ **Estimated Cost Of The Components:**

*All cost mentioned below are quoted after checking the rates of the respective components online.

Ultrasonic sensor	Rs-250/-
Ultrasonic transmitter	Rs-300/-
Laser source	Rs-200-500/-
IR sensor	Rs-200/-
Photodiode	Rs-100-400/-
Regular components (Resistor, OP AMP, Connecting wires, LEDs)	Rs-400-600/-
Material to build model	Accordingly.

Total cost= Rs-4000(approx.)

➤ **References:**

- 1) Wikipedia.
- 2) Various online shopping websites (Flipkart, Alibaba, Ebay, Robotshop, etc.) .