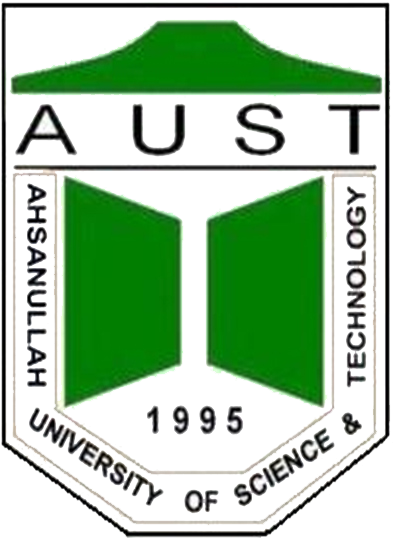
**Ahsanullah University of Science & Technology**

**Department of Computer Science & Engineering**

**Semester Spring 2021**



# CSE 3216

# Microcontroller Based System Design Lab

# Project Proposal

**Project Name:Smart Traffic Control System**

**Submitted To**

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# Objective

The main objective of this project is to adjust and control flour of traffic in order to fulfill the needs of vehicle flow and to reduce the waiting time and also designed to improve the standard of driving at city and to reduce accidents. The proposal aims at digitalizing the railway gate control system, reducing the traffic jams in order to reduce traffic congestion, optimize traffic flow and help pro-actively manage traffic conditions.

# Social Values

One of the most challenging and complicated issues in the city management in the present decade for Bangladesh is the traffic problem. It is a very common phenomenon in almost all the cities of Bangladesh. Presently, traffic congestion problems in Bangladesh are increasing at an alarming rate. The traffic problem has become to a very dangerous arena and has already implicit agonizing extent in the cities of Bangladesh. In most of the places of Bangladesh there is no zebra-crossing, people have to use foot-over bridge which is a great problem for elderly people and people with heart diseases, asthma and respiratory diseases etc. It can be solved by introducing more zebra crossings with digitalized traffic signals for pedestrians. Again, the reckless driving and overspeed on the U-turns are causing a lot of accidents. Moreover, careless railway control system has taken the lives of many people. In these circumstances, taking over the power from the hands of human and handing over it to an organized and automated railway and traffic system would be more preferable. So, this is the main motto of our project.

# Required Components

These following parts and tools are required for building this project -

* Arduino UNO
* IR Sensor
* Servo Motor
* Buzzer
* Dotted Veroboard
* Jumper Wires
* Male Header
* Female Header
* On/off switch
* Battery Clip
* 9V Battery
* LED
* Wires (Female to Female, Male to Male, Male to Female)

# Working Procedure

The basic components that react to the input are -

• Servo motor

It controls the movement of crossing gates to be closed for blocking the road when a train is coming.

• LED Lights (Red, Green, Yellow)

It gives a visual signal to pedestrian, vehicle traffic and train by red, yellow and green lights.

• IR sensor

Infrared sensors are another type of sensor often used in traffic signals. Active infrared sensors emit low-level infrared energy into a specific zone to detect vehicles and trains. When that energy is interrupted by the presence of a vehicle the sensor sends a pulse to the traffic signal to change the light and when that energy is interrupted by the presence of a train the sensor sends a pulse to the Servo motor to block the road using crossing gates.

• Buzzer

Alarm rings when a train is crossing the road.

# Estimated budget

|  |  |  |
| --- | --- | --- |
| **Equipment** | **Quantity** | **Budget (Tk)** |
| Arduino Uno R3 | 1 | 650 |
| Male to Male,  Female to Female and  Male to Female Wire | As required | 100 |
| IR Sensor | 4 | 320 |
| LED | As required | 100 |
| Servo Motor | 2 | 400 |
| Jumper Wire | As required | 100 |
| 9 Volt Battery | 1 | 60 |
| Buzzer | 1 | 15 |
| Male Header and Female Header Pins | As required | 180 |
| On-Off Switch | 1 | 10 |
| Battery Clip | As required | 20 |
| Dotted Veroboard | 1 | 25 |
| **Total** |  | **1980** |

# Conclusion

Our Arduino-based Smart Traffic Control System can be used globally to control the traffic on roads and highways. This system can be installed to maintain an organized traffic system where people can move without any hustle. Moreover, the traffic control system can be very useful to avoid accidents on highways through our U-turns vehicle detector and train passing buzzer alarm.