**Project Idea Submission Form**

|  |
| --- |
| **Student Ids (In ascending order)** |
| 1505061  1505071 |
| **Project Name** |
| Street Light Controlling system. |
| **Brief Project Description**  The proposed system consists of Atmega8 microcontroller, LDR, PIR sensor and RTC. This system controls the street lights using light dependent resistor and PIR sensor.  Street lights are switched on depending on the intensity of the Sun light on LDR. If the intensity of Sunlight on light dependent resistor is low, its resistance value is high. This value increases and becomes high when it is completely in dark. This resistance value decides when the street lights are required to switch ON.  As the resistance value is maximum in the midnights, real time clock comes into the play. The controller checks peak time during which there is no traffic and switch OFF the lights. When there is any vehicle on the road, it is detected by the PIR sensor.  Whenever PIR sensor is detected it just indicates the microcontroller to switch on the street lights. Then lights are switched on for 2 to 3 minutes and switched off automatically.  The principle behind the working of the project lies in the functioning of IR Sensor. We are going to use a Transmissive type IR Sensor in this project.  In Transmissive IR Sensor, the IR transmitter and receiver are placed facing each other so that IR receiver always detects IR Rays emitted by the IR Transmitter.  If there is an obstacle between the IR Transmitter and Receiver, the IR Rays are blocked by the obstacle and the IR Receiver stops detecting the IR Rays.  This can be configured to turn ON or OFF the LEDs (or street lights) with the help of microcontroller.  At the beginning, when there is no obstacle, the IR receiver continuously detects IR light transmitted by the IR Transmitter. When a car or any other vehicle blocks any of the IR sensor, the microcontroller will turn ON the immediate three LEDs.  If the car blocks the first IR sensor, the first three LEDs are turned ON by the microcontroller. As the car moves forward and blocks the second IR sensor, the corresponding next three LEDs will be turned ON and the first LED of the previous set is turned OFF. The process continues this way for all the IR Sensors and LEDs. |
|  |
| **List of sensors/input devices used**   |  | | --- | | Name: IR Receiver Sensor Model : SEN-00014  Link: <https://www.techshopbd.com/product-categories/light/288/ir-receiver-sensor-techshop-bangladesh>  Name: IR Transmitter - White (5mm) Model : SEN-00011  Link: <https://www.techshopbd.com/product-categories/light/743/ir-transmitter-white-5mm-techshop-bangladesh>  Name: LDR 5mm Model : SEN-00001  Link: <https://www.techshopbd.com/product-categories/light/162/ldr-5mm-techshop-bangladesh>  Name: DS1307 RTC Model : DIC-00106  Link: <https://www.techshopbd.com/product-categories/rtc/172/ds1307-rtc-techshop-bangladesh> | | **List of Actuators/output devices used** | | Name: LCD 1602 Model : DIS-00032  Link: <https://www.techshopbd.com/product-categories/lcd/1439/lcd-1602-3-3v-blue-backlight-techshop-bangladesh>  Name:LED Red - 5mm Model : PCM-00238  Link: <https://www.techshopbd.com/product-categories/led/291/led-red-5mm-techshop-bangladesh> | |
|  |
| **List of Actuators/output devices used**   |  | | --- | | Name: LCD 1602 Model : DIS-00032  Link: <https://www.techshopbd.com/product-categories/lcd/1439/lcd-1602-3-3v-blue-backlight-techshop-bangladesh>  Name:LED Red - 5mm Model : PCM-00238  Link: <https://www.techshopbd.com/product-categories/led/291/led-red-5mm-techshop-bangladesh> | |
|  |
| Miscellaneous & Discussion |
| Applications ::  The street light control circuit can be used in normal roads, highways, express ways etc.  The project can also be used in parking areas of malls, hotels, industrial lighting, etc.  Advantages ::  As the lights are automatically turned ON or OFF, huge amount of energy can be saved. |