

# **AUTOMATIC BARRIER CONTROL IN THE ZEBRA CROSSING OF ROADS FOR PEDESTRIAN SAFETY**

## **AIM:**

Design and Development of Automatic barrier control in the zebra crossing of roads for pedestrian safety.

## **PURPOSE:**

Statistics says traffic on roads increased day by day around the world especially in metro roads. Pedestrian safety is very important and need much more attention to avoid accidents. To control pedestrian and traffic vehicles, we need more traffic control staff and it is difficult to maintain more man power. Here technology brings solution to provide automaton of zebra crossing with automatic barrier control of vehicle and providing safety to pedestrians. We will do zebra crossing like moving escalator with the help of electric motors. At the time of zebra crossing moment controller power of barriers on road to stop vehicles. According to zebra crossing action and barrier control traffic lights will be controlled automatically. The entire system runs on Arduino microcontroller with Bluetooth module. Bluetooth modules transmit zebra crossing status and barrier control status to near traffic police. The proposed project title is automatic barrier control in the zebra crossing of roads for pedestrian safety using Arduino.

## **DESCRIPTION:**

Bluetooth module (HC-05) interfaced with Arduino UART port. Two servo motors, DC motor with l293d and traffic lights interfaced with Arduino digital pins.

## **WORKING:**

Two set of traffic lights placed for pedestrian and vehicles respectively. When Pedestrian Green LED ON and then Red LED ON for vehicles and barrier gates will be closed on both side of zebra crossing.

Two set of zebra crossing mechanisms will start moving from left to right and right to left to cross pedestrians. After few seconds zebra mechanism will stop and Green lights for roads will ON, Red light for pedestrians will ON and barrier gates will open. All this information will update to traffic police mobile app through Bluetooth module.

## TECHNICAL SPECIFICATIONS:

### HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Servo Motors	:	SG/MG series
Zebra crossing	:	DC motor based mechanism
Traffic LEDS	:	Red, Green and Yellow LEDs
Bluetooth	:	HC-05
Buzzer	:	5V DC
Power Source	:	12V 2 amp Adaptor

### SOFTWARE:

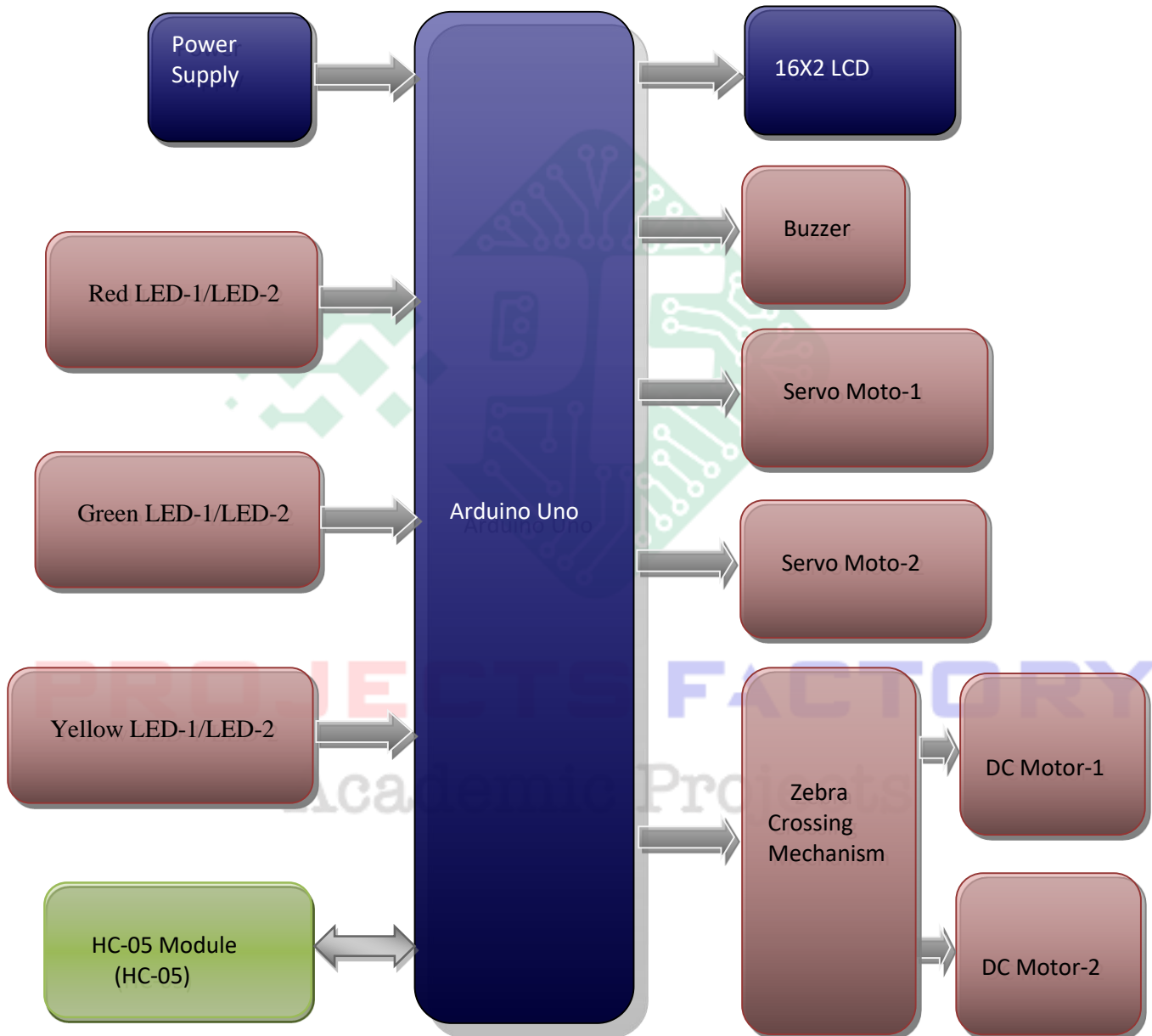
Arduino IDE

Proteus based circuit diagram

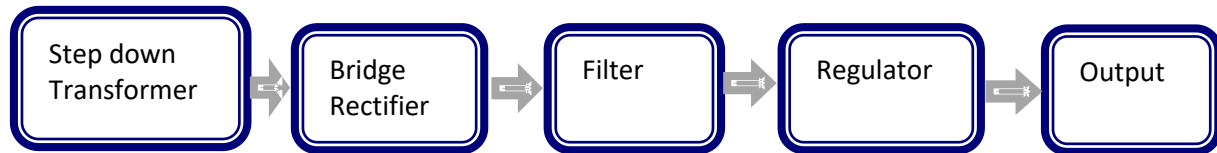
### APPLICATIONS:

- Smart Zebra crossing
- Intelligent zebra crossing
- Automatic stop gates at zebra crossing
- Automatic barrier control at zebra crossing
- Automatic Zebra crossing at traffic lights

**BLOCK DIAGRAM:**



## POWER SUPPLY BLOCKDIAGRAM:



## INTERFACES COVERED:

- We have covered Arduino and Bluetooth (HC-05) module interface
- Servo Motors and zebra crossing mechanism interface
- LED traffic light interface

**PROJECTS FACTORY**  
Academic Projects