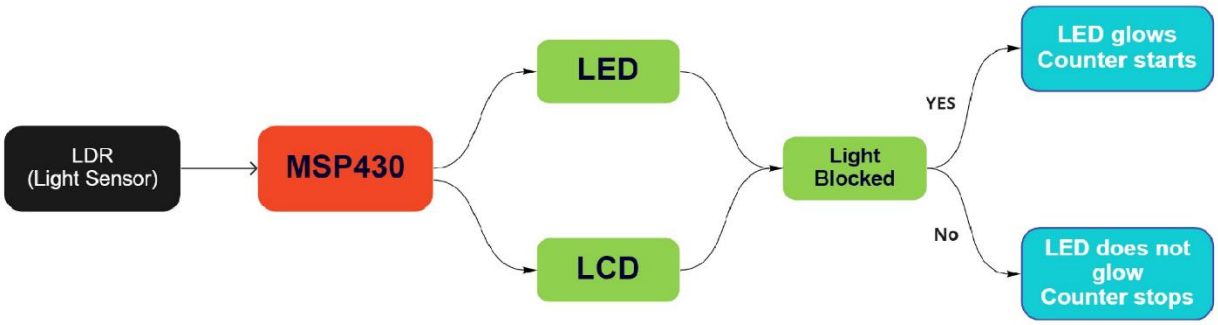
Automatic Vehicle Counter & Time Tracker

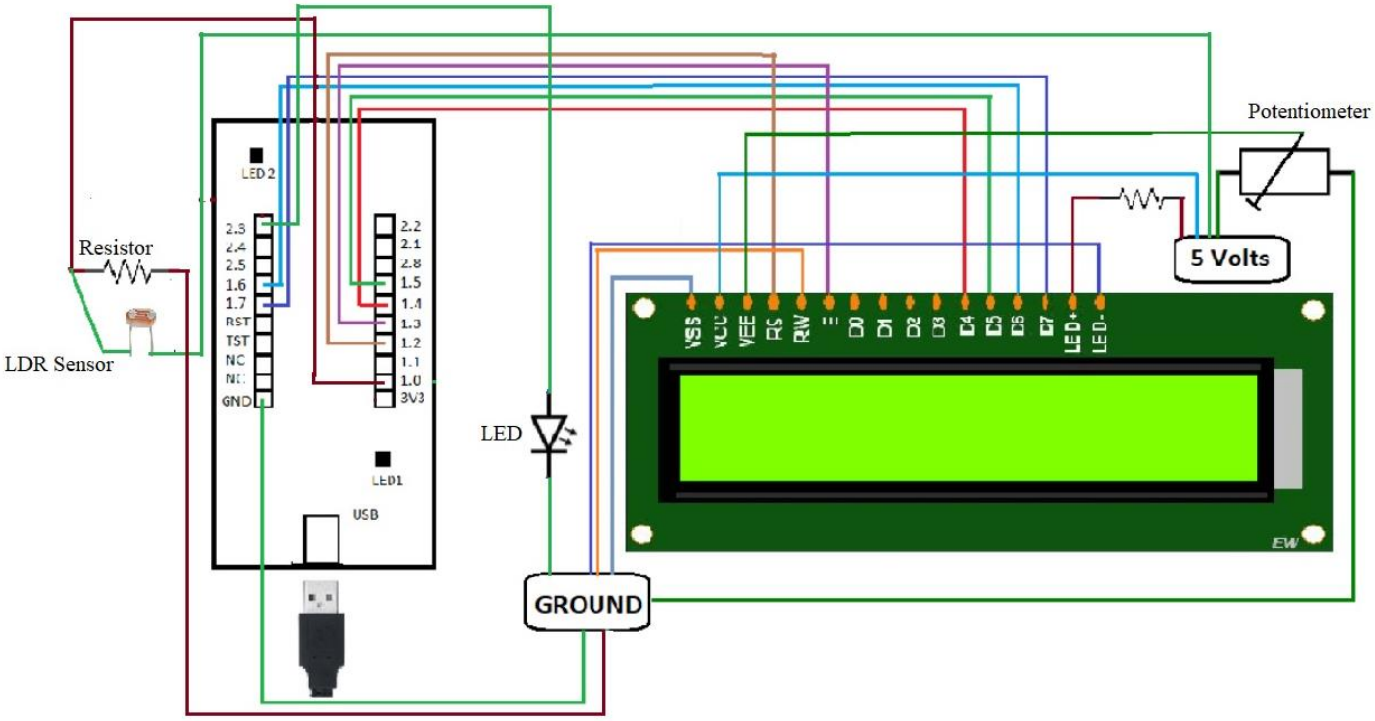
Problem Statement:

To maintain a record of vehicles that pass through an area (ex. Toll Gate) and keep a track of their halt duration is a tedious work to do when done manually. Through this project we have tried to eliminate the need of any human intervention for this purpose, and we can easily keep track of the number of vehicles and their halt time at that place.

Flowchart:



Schematic Diagram:

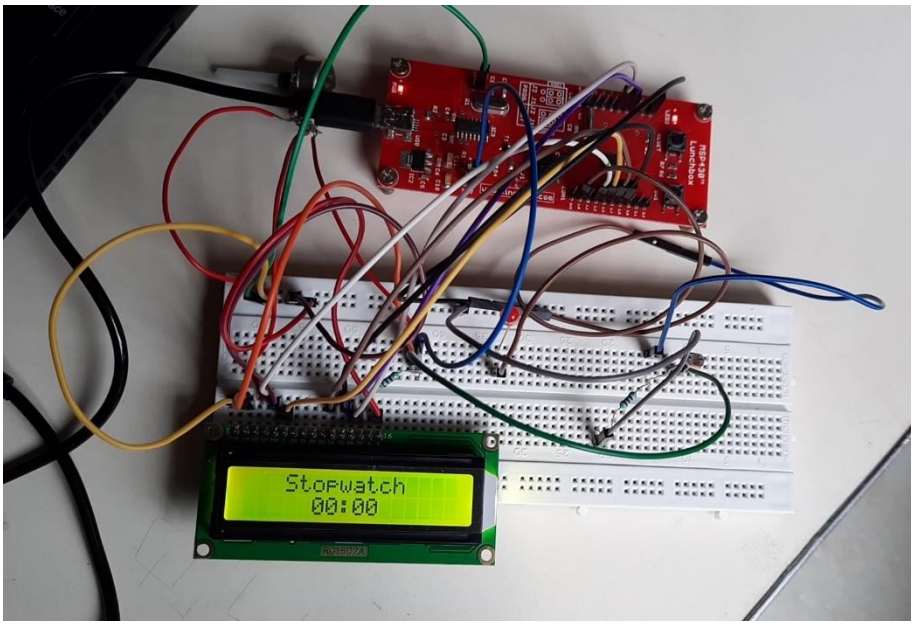


Components Used:

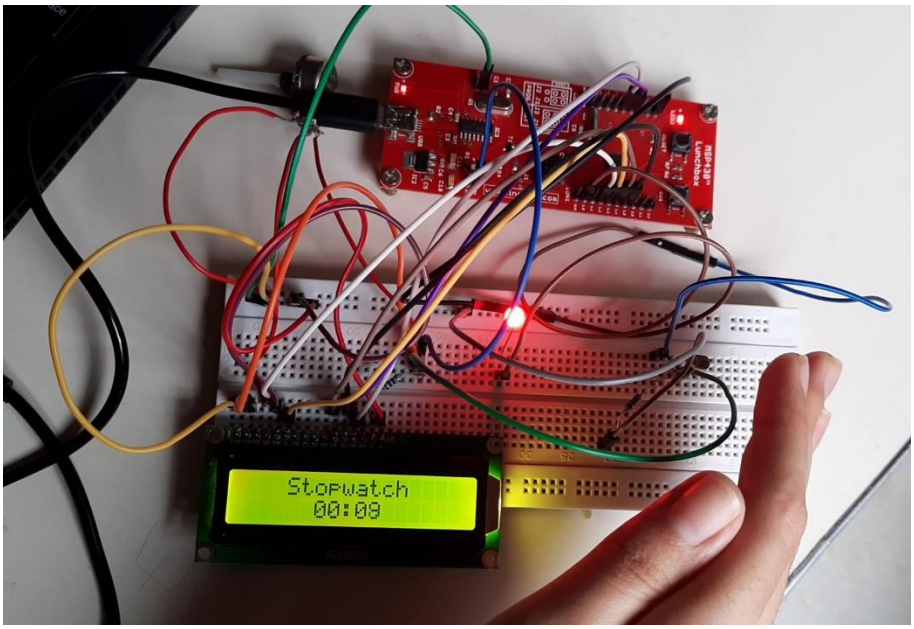
1. MSP430G2553
2. LCD 16X2
3. LDR Sensor
4. Jumper and Simple Wires.
5. Potentiometer
6. Bread Board
7. LED
8. Resistor

Results:

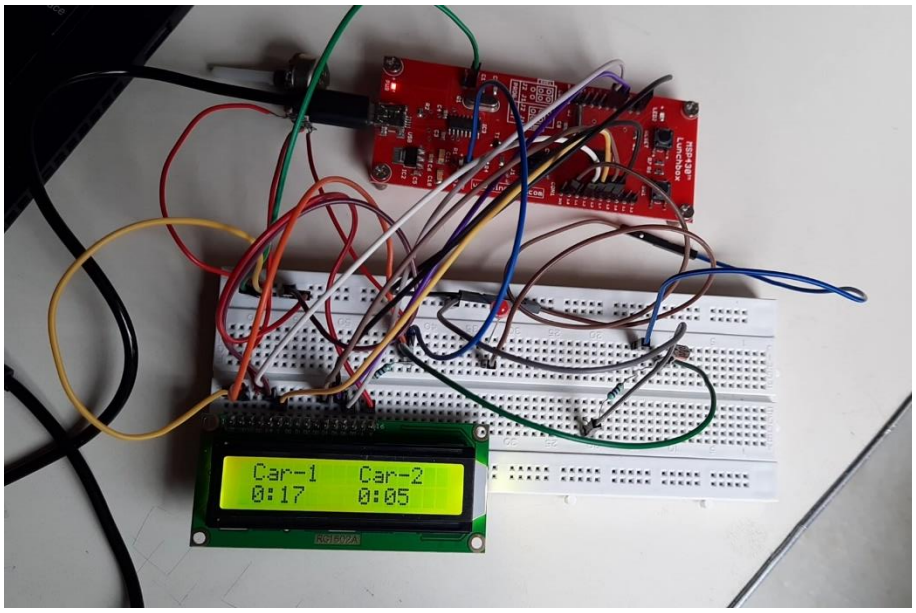
After program is dumped in the MSP430 microcontroller, we can see stopwatch with timer set to 00:00 on the display.

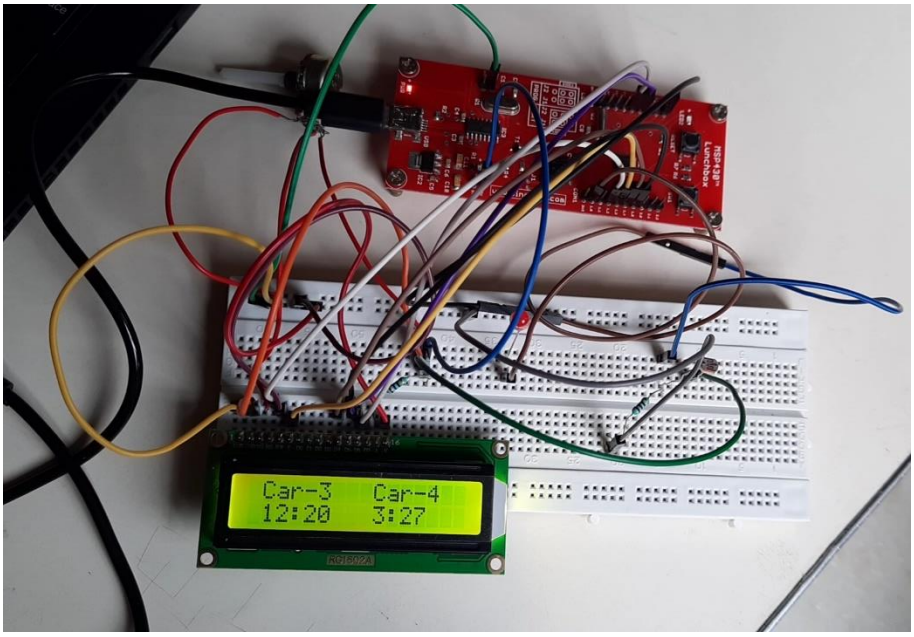


As soon as a vehicle (say a car) arrives in front of the LDR sensor, it decreases the intensity of light being captured by the sensor and according to our program, timer starts to record the time that the car has halted for. Red LED also starts glowing to indicate that a vehicle has stopped.



As we remove our hand from the sensor it resets to 00:00. For the purpose of this project, it records the time for 4 vehicles and after that, displays it on the LCD. The values are printed in loop which means that after displaying values for Car 3 & 4, LCD again starts to display the values staring from Car 1.





Application of this project is not limited to just toll plazas. It has wide usage with respect to security and keeping records. Some more equipment can be added like buzzers to work as alarm system and motors for some added features like automatic light and gate controls.