Garage system

Computer Interface - project

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Vehicle Counting Overview

Vehicle counting is becoming a common requirement for car parks regardless of their size. It is a great convenience for visitors to be aware of the number of available spaces before they enter a car park or venture into another section of the car park. Traffic monitoring on roads is also becoming commonplace as highway authorities and council transport departments strive to reduce congestion.

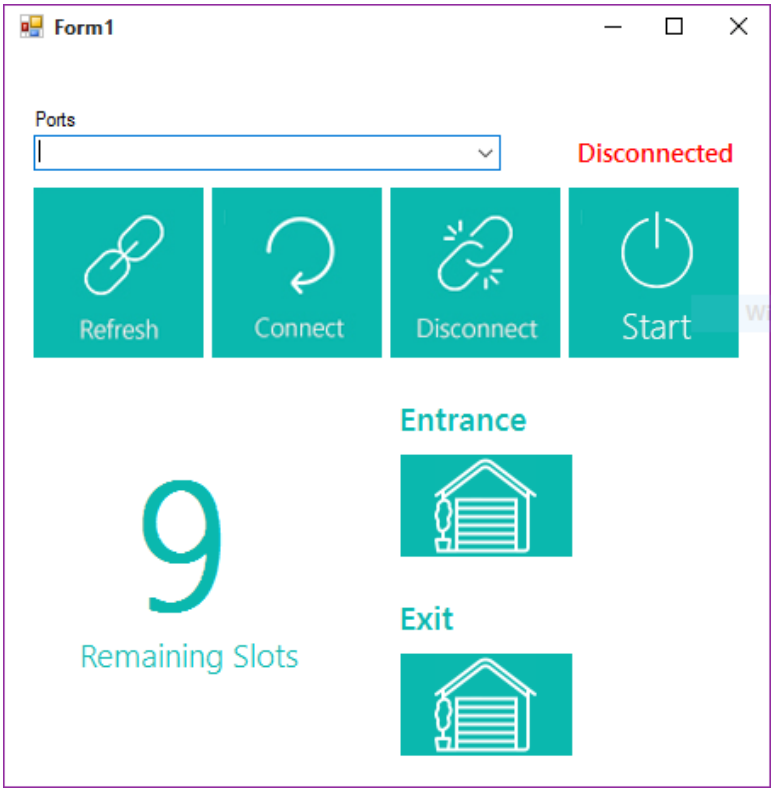
For vehicles to be automatically counted, there needs to be a means of detecting them. The most common form of vehicle detection uses an inductive loop buried in the road surface. As a vehicle passes over the loop, the loop inductance changes causing the loop monitoring circuit (loop detector) to output a signal. If two such loops are placed close together along the path of the vehicle, the direction in which the vehicle is traveling can also be detected. In car park applications, loops need to be placed in each entrance and exit lane as well as on ramps between levels. The counting system receives the signals from the loop detectors and maintains a count of vehicles entering and exiting each area. It then computes the date as necessary to provide the required display information and / or alarm signals.

Typically, the count system will provide comprehensive on-screen information to the management and / or display count values at key locations around the car park using Variable Messaging Signs (VMS). The counting system may also have ‘count thresholds’ set so that it can raise an alarm whenever a count reaches a critical value.

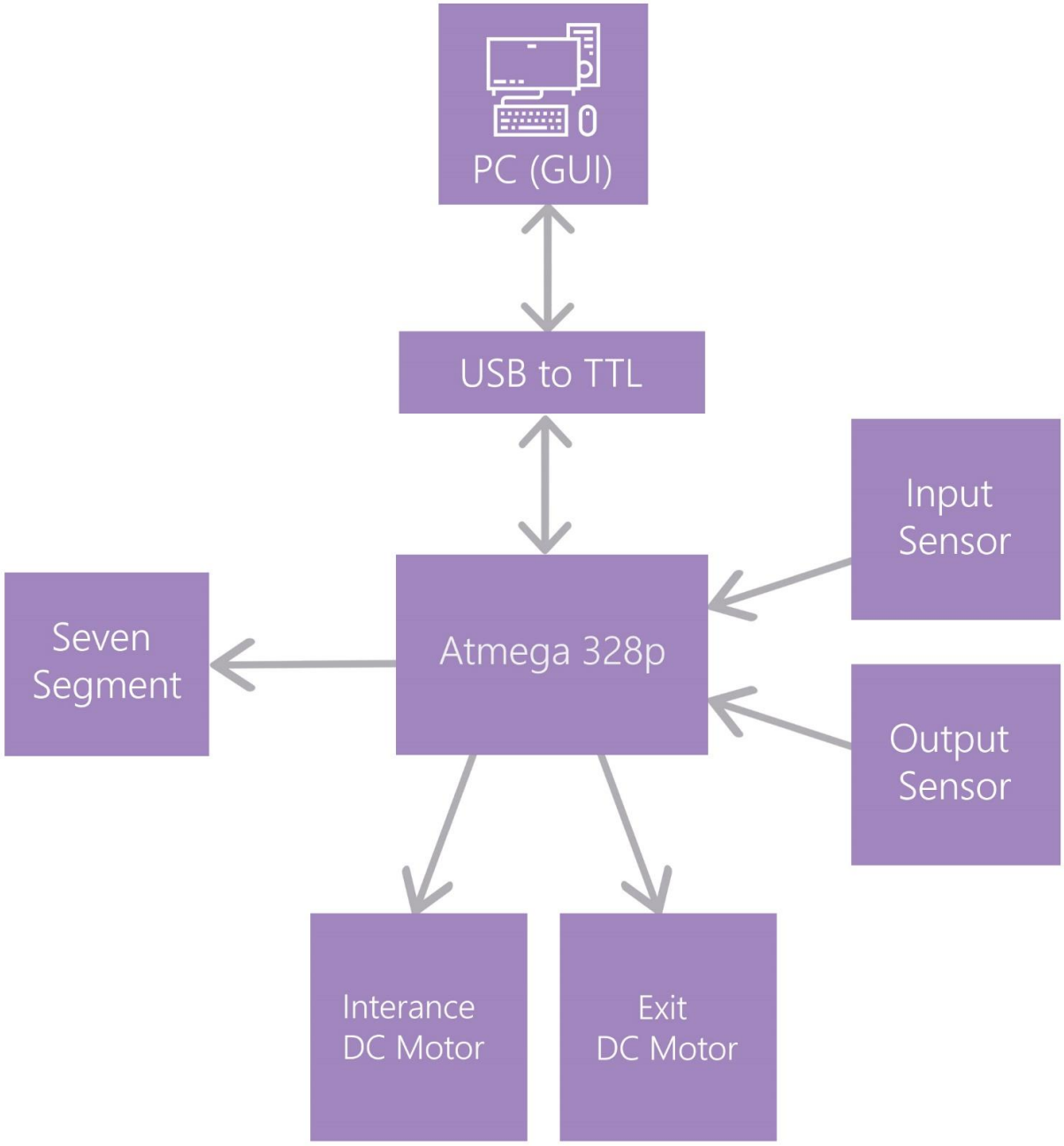
Description

It is a garage with a static number of slots for parking, using two IR module sensors as an input to our system in case a car or more is entering or exiting the garage and then we can output the number of free slots on the seven segment and also see it on our GUI Program and according to the input sensors, if the signal is coming from entrance sensor gate the entrance dc motor will work to open the gate so the car can get in and if the signal is coming from exit sensor gate the exit dc motor will work to open the gate so the car can get out.

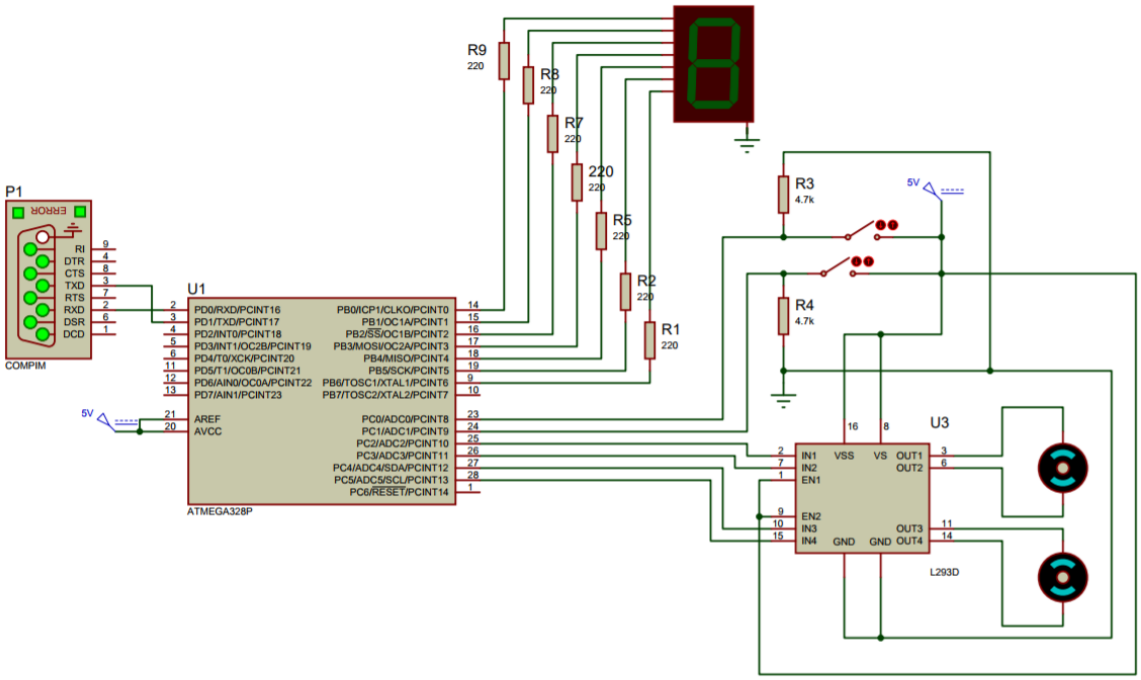
GUI


Form1
Ports
Disconnected
Refresh
Connect
Disconnect
Start
Entrance
9
Remaining Slots
Exit

Block Diagram



Circuit

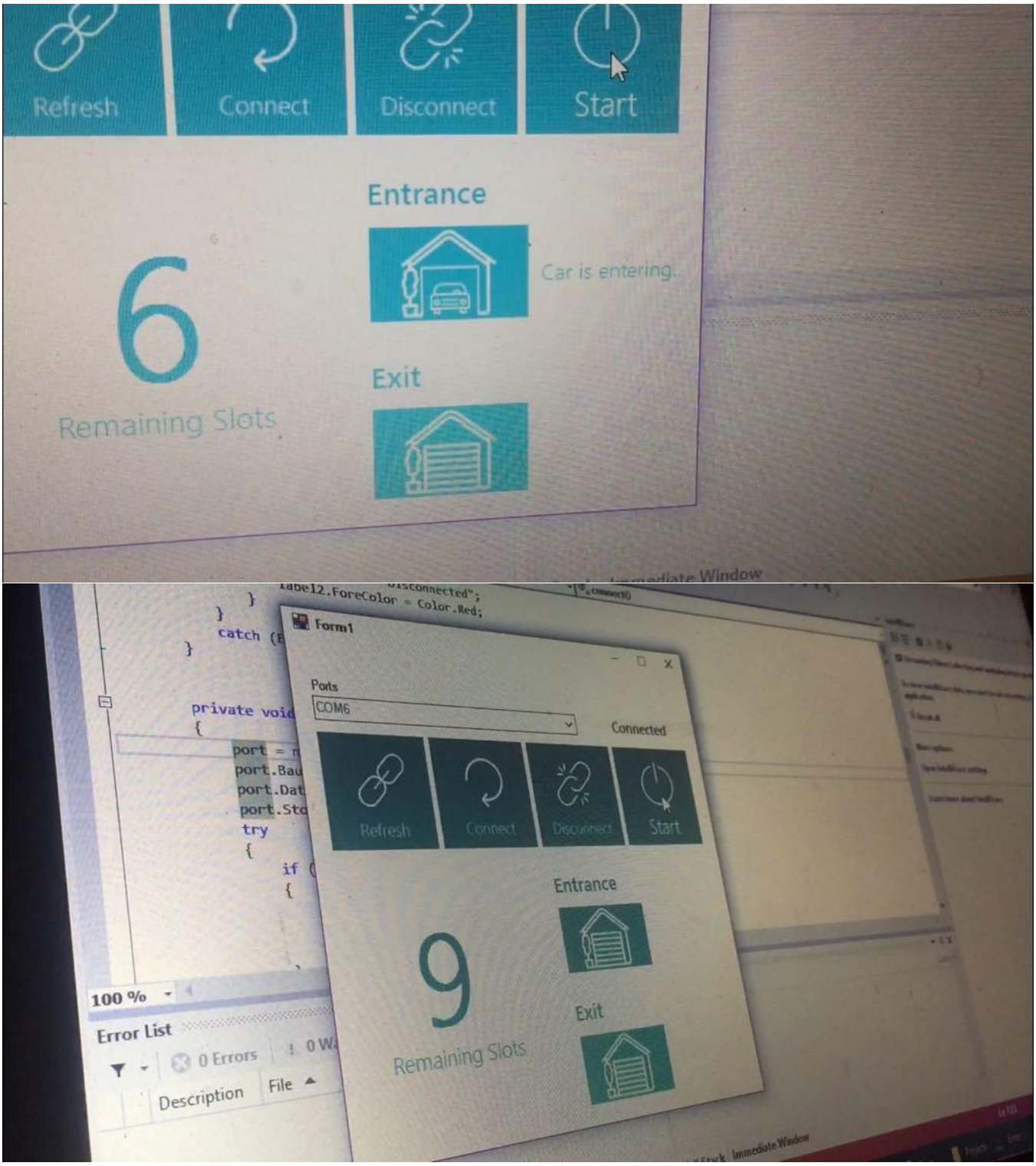


Component List

#	Component Name	No of Units
1	Seven Segment	1
2	Resistors with different values	~
3	IR Module	2
4	DC Motor	2
5	Motor Driver (L293D)	1
6	Inverter (7404)	1
7	Atmega 328p	1
8	Test Board	1
9	Connecting Wires	~
10	DC Adapter (5v)	1
11	USB to TTL	1
12	Push Button	1
13	Capacitor (100nf)	1

Pics of Final Output

Working GUI



Final Circuit Connected to PC to Test the Final Output