GTU CSE 101 TERM PROJECT REPORT

Project Name: Automatic Car Parking System **Group 9**

Group Members

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NOTE: İbrahim Çim and Umut Duman didn't attend the project. They are absent.

Work Sharing

Note*:* We did not separate the jobs specifically, we worked as groups in each part of project when we meet for project. So, every member deal with nearly every part of the project.

Coding: Atilla Albayrak-Ahmet Mücahit Gündüz-Çağrı Tirelioğlu –Emre Kibar-Furkan Dereci

Hardware and Equipment Linking: Burak Kurtaran - Emre Kibar - Furkan Dereci - Ünal Sarıemir

Building the Model and Decoration: Burak Kurtaran - Furkan Filicioğlu - Ünal Sarıemir

Report Preparation: Emre Kibar – Furkan Filicioğlu

Powerpoint Presentation Preparation: Atilla Albayrak - Çağrı Tirelioğlu - Furkan Filicioğlu

Presentation in Class: Ahmet Mücahit Gündüz - Çağrı Tirelioğlu

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1. Introduction

In our project, we wanted to work on a subject which is become problematic in our daily lives. So that, we made a project which solves car parking issues that big cities have, especially Istanbul. In Istanbul, there is not enough car parking slots for the cars. So that, we made automatic car parking system to reduce the cost by using non-human systems.

2. Description of The Problem

The reason of insufficient car parks is caused by excessive cost of car parks. So that, we purposed to reduce the cost of car parks by using systems which works without operator. With this way, we save the money which we need to pay the operator. By using this technique, we can construct more car parks. So that, we wanted to keep in step with the times.

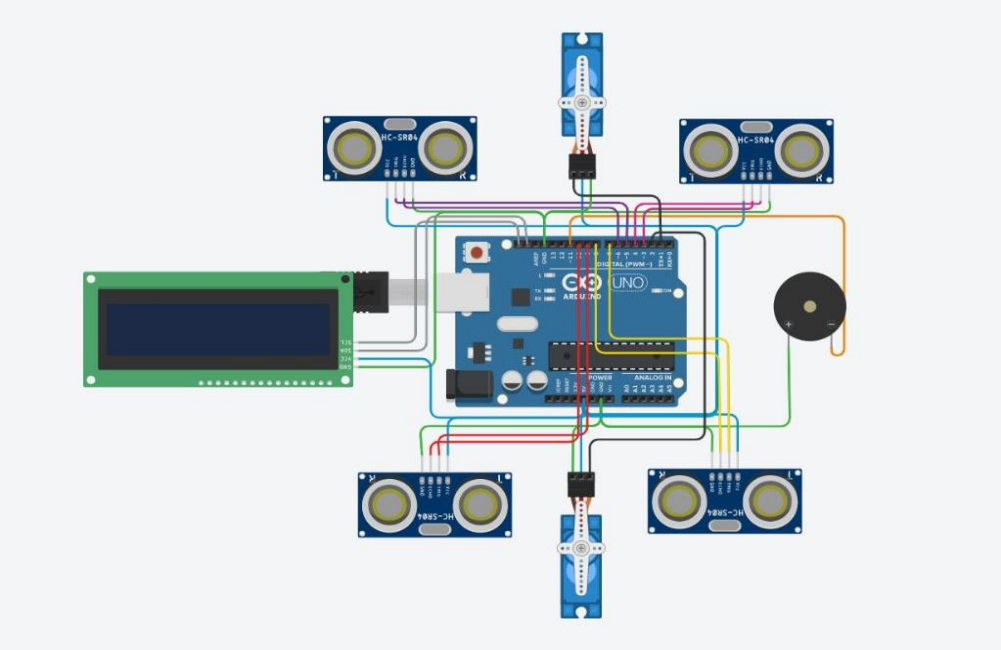
3. Requirements for the Project

- 1 x Arduino Uno
- 1 x Breadboard
- 4 x HCR-04 Ultrasonic Distance Sensor
- 2 x 9V Servo Motor
- 1 x Piezo
- 1 x LCD (16 X 2) (I2C)
- Jumper Cables

4. Description of the Solution

In the project, we create a miniature car parking which has two gates and two ultrasonic sensors for each gate to coordinate entrances and exits. When the sensors at the entrance gate detect motion, the entrance door that linked to servo motor opens and calculate the number of cars within the car parking. Same method also works for exit gate. In the project, drivers must give attention the way according to gate because if the cars try to get out by using entrance gate, the buzzer make noise and the error message are showed by the LCD screen, also, this is valid for exit gate about trying to enter from exit gate. If all the predetermined parking slots are full, the project does not allow the entrance and give error via buzzer by making noise and LCD screen shows error message.

5. Project Design



6. Output and Benefits of the Project

With the project, we automated the car parking system, and we get rid of the operator factor. So that, our car parking system can work 7/24 without operator error factor and our project become faster, more efficient and durable. Also, we get rid of the cost needed to operator. By this way, we can construct more automated parking systems instead of operated car parking systems.

7. Result and Conclusion

Finally, we reached a solution to solve car parking issue. By automating the car parking system, we reduced the cost and provide a way to make more car parking.

8. References

- Arduino Car Parking System - YouTube
- Arduino Forum
- Robotistan - YouTube
- Robolink - YouTube