AUTOMATIC CAR PARK

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ABSTRACT

In today's world, with the increasing number of cars, finding a parking lot becomes very troublesome. To solve this problem, a multi-storey car park system is proposed. What if there is a building that will automatically park the car for people with minimal time and effort?

This system involves the action of taking the user's car and placing it in a safe place and then returning it to the user whenever the user needs it back. To prove this system's effectiveness, a prototype is made to simulate its actions using toy cars. The multi-storey prototype consists of 2 levels and 3 parking slots in each level. The system is expected to distinguish if the parking lot is occupied or vacant and also able to park or retrieve the car at any of the 6 parking lots.

Once the user wants back the car, he/she has to scan the RFID card given earlier to retrieve his or her car that was parked previously.
This project basically covers the usage or 3 different types of motors. DC motors to move the elevator up and down, stepper motor to move elevator around its axis and servo motors to mount and dismount the car. While parking the car, the microcontroller will send the car parking location to a computer using UART to USB converter to interface it with a GUI. For each car parked, the user will receive an RFID card that indicates the location of the user's car. This requires the use of a RFID card reader that connected to a computer through another USB.

The main challenge of this project is the combination of all the codings using various languages. The programmings of the microcontrollers are done using C language while the GUI was done using visual basics. Therefore, in order to carry out the functions properly in depth study has to be done on 2 languages simultaneously and making them communicate with each other at the end. Other than that, the construction of the prototype is also a hassle for it has to be precise and due to the limitation of the mechanical tools available, the prototype was rather difficult to construct.

[Keywords : multi-storey car park , RFID , DC motor, Stepper Motor, Servo Motor, C language, Visual Basic, GUI]