AUTOMATIC MULTILEVEL CAR PARKING SYSTEM

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Abstract - *Parking is the one of the biggest problem in market as well as in populated area. Usually people park their cars/vehicle on the side of road or in front of any shop. This lead to major traffic. The main reason is incorrect and improper parking of vehicles by which people at least take place of 2-3 cars space for every 15-30 vehicles. Our project is based on parking of cars and similar vehicles in a multilevel car parking system which will allow more cars to be parked in less space and also provide security to the vehicles as it can be only accessed by user and operator. As the system is fully automatic there are no chances of improper parking. Some features of the system are given below- fully automatic mechatronic system- park the car without driver. Vehicle is fully secured. As the system designed by us is cheap and it is based on the working mechanism of Forklift. System will save time and reduces human effort, as one operator can control the whole parking system. There is no harm to human life in case of accident.*

***Key-Words*: Automatic car parking system, Multilevel car Parking system**

1. INTRODUCTION

Multi-level car parking is becoming popular as they use less space for parking. However parking on multiple floors is challenge in it-self as it need of using lift mechanism for moving the vehicle from one floor to another, there should be proper coordination between the vehicle and the lift mechanism. The aim of our project is to identify the issues and challenges in development of such system by manufacturing a prototype of automatic multilevel car parking system.

Country like India which is developing country needs such automatic parking system. We are using such system in malls & hotels, these systems are expensive and hydraulically operated. This is

the reason we can't install such expensive system for regular parking.

That's why we have come with our project which is automatic and low cost and easily install by anyone and it is easy to operate as it require less human effort & can be controlled by only one person.

1.1 Forklift with Parking System
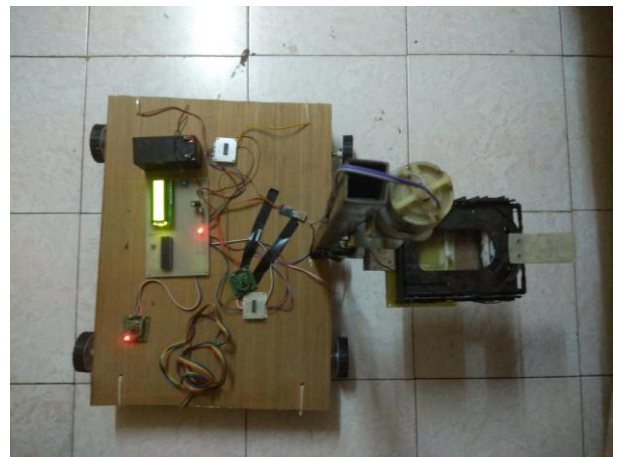
1.2 Hardware used
1) Dc motor
2) Wheel
3) Bearing
4) Lead Screw
5) Dummy Wheels
6) L-Clamp
7) Frame
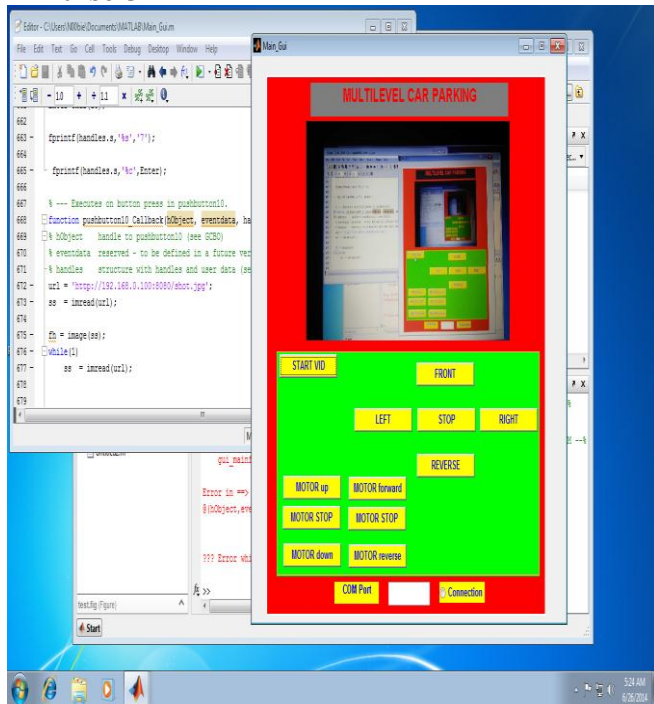
1.3 Electronic hardware
8) Bluetooth
9) Atmega16 Microcontroller
10) L293D
11) Power Supply

1.4 Software used

Matlab

Catia/Autocad

Turbo C++

2. Problem statement

In India Automatic parking system is only used in few Malls & Hotels. Due to its cost and lack of knowledge of existence of such system. There are few multilevel parking system but they are mechanical and require human effort, as system is human and mechanical there is chances of accident due to human error, that's why people prefer manual parking and because of manual parking 10-20 cars uses extra space of 2-5 cars due to improper parking. Due Lack of space is available for parking the vehicles people are parking their cars/vehicle on side of road which causes lots of trouble and traffic. Keeping these things and problem in mind the study was planned to develop an "automatic multilevel car parking system" which is low cost and can be easily used by any one, best thing is that it is automatic and needs only one person to operate this whole system.

3. Scope

As stated the aim of the project was to implement a multi-level car parking system using the forklift robot. Normally forklift is being used for lifting the goods in industries we are using same concept to lift the car for parking the vehicle at different floor and as a lift controller coordinating the movement of the vehicle from one floor to another. The web camera to detect obstacles and accordingly identify the empty slot available for parking. The motors were used for lifting mechanism to lift the car from ground to parking space while L2938D module installed in the system is used for communication between the lift controller and the vehicle.

4. Objective
There are so many parameters to do this project.

1. Automatic way of parking
2. Low cost parking
3. Reduces traffic and space require for parking
4. Reduces human effort.
5. Safety in use as there no one is present.

5. Block diagram
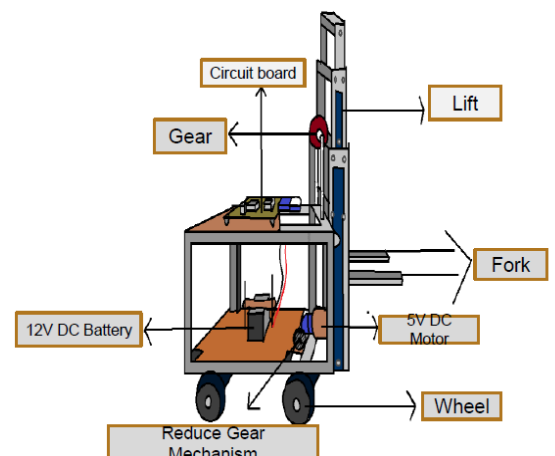
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