DSA J COMPONENT

Project - Initial Description

Instructions: *This is a sample format of initial description of the problem statement of your project. Think well to choose a problem of your interest. Please give a one page description about your problem statement and an idea on this format. Submit it on Moodle in the link on or before 28 July 2020. Whenever you are finished before this deadline, you can intimate me so that we can have a team discussion on MSTeams. For any clarifications, you can contact me any time. All the best.*

Team Members:

A, B, C, D and E.

Tentative Topic: Smart Vehicle Parking System

Motivation

Nowadays, we have big malls and offices all over our country and the same require quite a large area of parking space for the growing number of private vehicles owned by individuals in our country so that they may have the facility to park their vehicles. This facility has always been one of the growing demands in our country and people are even ready to pay quite the sum to get this facility. While in the search for an empty parking space, in some cases, the parking areas are so big that the customers/users find it quite difficult to find an empty parking space. And not just that, it also sometimes becomes troublesome to find their car back and reach the nearest exit when the users intend to leave that place. To help you with it we have come upon this small initiative of ours to smartly locate spaces for vehicle parking in reduced time and in shortest distance.

Problem Statement

When a person comes into a parking lot with his/her vehicle, he/she should be able to know whether there is a parking space available in that lot. If the parking space is present, then he/she should be able to get the location and a route to an empty parking space which is nearer to the entry point. The parking space data including lot location, distance and other relevant details would be stored in suitable data structures like heap and dictionary. If any person wants to find his/her car's position in the parking lot, then it needs to be conveyed to him/her. And finally the shortest path to the exit should be provided to the customer.

Flow Diagram/Block Diagram of the System (tentative)

Draw a simple diagram of your proposed idea clearly depicting the input, a rough process and the output. The rough process may not be the exact solution. It may get improved as and when you progress. This is just for getting a fair understanding. You can also draw in a paper, scan and paste it here.

Modules in the system (tentative)

Module 1. *Finding a Parking Space*

Input: All possible parking lot numbers along with its distance from the entry point
Output: The Nearest parking lot.

Module 2. *Finding location of any vehicle*

Input: Vehicle Number
Output: Vehicle Lot number in parking space

Module 3. *Finding the shortest route from the lot to the exit*

Input: Lot No.
Output: Shortest Distance

Module 4. *Reserve a parking lot*

Input: Time and Vehicle Number
Output: Parking lot number

Module 5

Module 6,…, and Module *N*.

Please Note:*The number of modules shall depend upon the number of persons in the project. We shall discuss on this when we finalize the problem statement. Thank you.*

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