# CS-391 DESIGN PROJECT

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**Project : Smart Parking System**

# ABOUT

Nowadays, car has become a necessity; it is no more a luxury especially for the working people.Traffic congestion caused by vehicle is an alarming problem at a global scale and it has been growing exponentially. Car parking problem is a major contributor and has been, still a major problem with increasing vehicle size in the luxurious segment and confined parking spaces in urban cities. Searching for a parking space is a routine (and often frustrating) activity for many people in cities around the world and contributes to loss of time and money, stress for the drivers as well environmental impact due to unnecessary fuel burning. Smart Parking systems can be a boon in such scenarios. They can be deployed to obtain information about available parking spaces in a particular geographic area and process in real-time to place vehicles at available parking spots. With the help of smart parking system, there would be no congestion in parking lot because the available slot is given by our smart parking app.

Moreover when driver enters a certain parking lot, the driver takes a long time just to find an available parking space. This system gives information about the number of available parking space. So in turn it will save time also.

# Advantages !!

**Efficiency-** The parking management system doesn’t rely on a man to do the job; instead, it deals with software and smartphones, which are less likely to make mistakes. On the other hand, automated software always works as long as you have your phone on, which is quite often. You get to decide how you want to pay or what you want to do precisely. As a result, the level of efficiency increases, and you get to deal with parking protocols without issues.

**Map Information**- Other than general information or question and answer, the software is also able to provide information that will help with locating places. It has map support for people who may be new in the area or people who are yet to get familiar with things.

**Security -**   One of the significant advantages of a parking management system is that it provides security. There is a barrier and reservation feature that controls the vehicles which have access to a place. This way, it can lock out some at certain times, if programmed to do so. There’s also a surveillance camera (CCTV) which monitors vehicles and can even be used for reference, in the case that there’s a need.

**Increased Service-** Smart Parking System reduces the magnitude of stress that comes into parking. Visitors no longer have to worry about driving around to look for space. They get to save fuel and even reduce pollution as there is provision for a place to drive into once the vehicles enter into the buildings.

**Charging Portals -** In present times Electric Vehicles seems to be future Smart Parking System provides charging portals at parking spots,Visitors can enjoy dual service as there vehicle will be charged while being parked.Thus it will save time.

**Challenges!!**

**The high cost of construction or installation-**  The cost of having a sound, working parking management system is usually high. This is because of the various components that go into making the system work.

**Breakdown-**  As a machine, the system could inevitably breakdown at some point. When this occurs, vehicles may not be able to have access to buildings, and cars parked inside might not be able to move. In another way, it could malfunction and lead cars to park in the wrong places.

**Uncertainty in the building structure-** For the smart parking system to be used, there is a need for a level of knowledge about the building. What happens if that is not available? The system cannot be installed, or installation without knowledge of building structures may lead to dangers and irregularities.

**Problems Related to Smart Parking System that need to be solved !!**

**Problem of operation-** For many new users who are not familiar with the Smart Parking System, it could be a little confusing for them to operate at first. This problem, of course, can be overcome with familiarity and a little education. If they ask questions on the operation procedures and are educated on the advantages that come with making use of the system, they get the hang of it with time.

**Problem of breakdown-** In this case, as well, standing contracts with the manufacturer will help as they will be able to respond quickly and deal with issues at the time they arise. Delays in the case may not be more than a few minutes, depending on the magnitude of breakdown.

**Tackling uncertainty in the building structure-** Dealing with this is quite easy as the building’s blueprint may be used, or the manager could decide to map out the necessary parts of the building, which deals with the parking area.

**Related Work Done for Establishment of Smart Parking System!!**

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