1. ***Park (Smart Parking System)***

**Description :-**

S-Park is a smart parking system, with a pure vision to eliminate time wastage at parking spaces and increase the security factors. It helps in reducing human labour, fuel consumption and pollution ensuring the efficiency and reliability of the parking system.

**Prototype : -**

The booking system for the car standing in the queue , for first 10 car standing in the queue there is specific QR code available , The cars have to scan those QR code and enter their number plate details and book a slot .

When a vehicle is at the entry gate it is detected by the IR sensor which in turns triggers the camera module and then the number plate details, vehicle type (Car , Bike , Truck ) and entry-exit time is saved to the cloud using KNN algorithm and Conventional Neural Networks .

**PARKING ALLOCATION & LIGHTING SYSTEM**

Every type of vehicle will have its own parking area. Since India is developing country soon the diesel and petrol cars will be replaced by electric cars so we have a different slots for it , where electric cars will have charging segment .

In our Android application the user can choose any floor , he will be shown available and occupied parking slots in a map view , By default he will be shown shortest path towards the nearest parking space available , the user also has the liberty to choose any parking at his will , and he will be shown the shortest path towards it.

In case the user loses track we will be asked to enter nearest pillar number and then from their the path will be shown .

Each parking slot will have a small bulb at the top denoting whether the slot is occupied or not .For occupied it is RED and for vacancy it is green

At the parking area, which vehicle (number plate) is parked in which slot is detected using vehicle classifier and the image of it is passed to number plate detection module , the result obtain from it is saved to cloud and the user is notified in the application that he has parked in this spot .

The total amount the user have to pay is based upon the span he has occupied the parking slot (entry time - exit time) .

**Registered User Section**

Whereas for registered user (staffs) will have fixed parking spot . they will have pay montly For the time, the parking slot was used and it will be Automatically deducted from his bank accounts .

All the visit details (entry and exit time) will be visible to him at all times.If his slot gets occupied by someone else, the admin will be notified immediately.

The normal user can pay at the cash counter on exit, or use Paytm , if user opt for Paytm option the details will be fed into cloud and the gates will automatically get opened.

**DIMING LIGHTS**

When no vehicles in motion are detected(using radar sensor), the lights will dim which saves energy .

**EASY ACCESS**

In case the user forgot where he his parked his vehicle he can locate his vehicle by entering the number plate details in the app and he will be provided by the shortest path towards it .