**Smart Parking Management System**

**Project Domain / Category**

* Mobile Application

**Introduction**

The increase in city traffic is one of the major effects of population growth especially in urban areas. Due to this searching for a vacant parking area during peak hours is not only time-consuming but also results in wastage of fuel. The drivers keep searching for suitable parking lot which leads to increase in traffic. Increasing volume of vehicular exhaust creates a negative impact on the environment. Hence reservation-based smart parking has become the need of the day. The proposed project is a smart parking management system that provides customers an easy way of reserving a parking space online mobile application.

**Functional Requirements:**

* 1. **Module parking operator**
* Define new parking areas; specify number of parking lots, the parking cost per minute/hour and other details.
* Modify data of existing parking areas.
* View the data of all registered parking areas.
* Send vehicle plate number and reservation password (Session ID) to central server for verification when users check in.
* Issue bill to users on checkout.
  1. **Module for end users**
* Register for the service and enter personal and vehicle details.
* Find a parking area from the list of areas, registered by parking admins.
* View the details of a selected parking area such as the name, price per minute, number of total available lots.
* Reserve an available parking lot and specify duration of reservation.
  1. **Google Firebase**
* Authenticate users and admins before modifying any sensitive data.
* Accept reservation of parking lots based on availability.
* Generate a Session ID for each reservation and send it to the user.
* Allow modification of parking lot status by operators.
* Auto-cancel reservation if user fails to reach within the window period.

**Tools:**

* Android Studio
* Google Firebase

**Supervisor:**

Name: Abdul Ghani

Email ID: abdul.ghani@vu.edu.pk

Skype ID: ghanibaloch2009