Bicycle Locking

Sudheendra[1], Mr. Arhath Kumar[2]
[1, 2] Dept of MCA
[2]Assistant Professor Dept of MCA
[1, 2] NMAMIT, Nitte

Abstract- *in today's life, parking provision for bicycle users is a must. One of the major things that the bicycle user is concerned is about security of his bicycle. Bicycle locking ensures and enhances the security by using various technologies. Bicycle locking is web based and mobile application based project. Mobile Application is developed in ionic3 and the end user application software is developed in PHP, this software provides better information which keeps track of all transactions, slot booking and waiting, nearest slot availability, bill generation, vendor management and Bluetooth based locking system. Secure login like OTP generation; integration to the payment gateways is also provided and analysis of vendor transactions can be shown through charts.*

Keywords- transactions, slot, vendor, payment, location, Bluetooth, security..

I. INTRODUCTION

The project "Bicycle locking" is a web based application and mobile based application, has been designed using PHP as front end and with MYSQL back end for web application and for mobile application front end is IONIC 3 and backend is MYSQL. This application acts as gateway between end user and bicycle locking.

Smart screen and controller architecture for bicycle locking is a web based application used to manage bicycle locking application. This application is developed in Ionic3 and PHP. Bicycle locking application is encouraged for use by employees and cycle commuters to offer a secure facility in which to park a cycle. This software controls workflow of application by assigning responsibilities to users who are known as sub admin. For different locations different sub admin will be allotted. Sub admin monitor users of particular location and sub admin is monitored by super admin. Thus it will have a control over the bicycle locking application.

This software helps in monitoring all the end users and the activities performed by them. The software provides various functionalities like user management and locking and unlocking using the tab Bluetooth technology. It also manages the slots and the time based on which the amount to be paid is calculated. This software provides enough security so that unauthorized users cannot have access to the system.

This software provides better information which keeps track of all transactions, slot booking, preponing, postponing and waiting list , nearest slot availability ,bill generation etc… This software has an enough security through the secure login like OTP generation, Integration to the payment gateways are also provided.

- This software provides enough security through the admin login so that unauthorized person can't be use this application.
- Super admin will provide a licence to each sub admin. They provides license key to sub admin and manages monthly payment.
- It develops locking and unlocking software and provides it to sub admin.
- Configuring hardware and software through smart screen using Bluetooth technology for locking and unlocking the slot.
- Super admin have the privileges to add the different languages so that this application can be used across the world.
- Initially the charges are made based on the slot. Special configuration for the sub admin is given to update the peak time which is calculated based on the duration and the slot.
- Provides better integration for the payment gateway.
- Configuring hardware and software through tab using Bluetooth technology for locking and unlocking the box.
- Provides rich user friendly interface where user can use GPS functionality to find the slot station in google maps.
- Slot booking, cancellation, preponing and postponing of booking, cancellation can be done.
- Bill will be generated based on the peak time, slot rate and duration of booking.
- Supports multi language interface.
- Provides a nearest location of available slots will be suggested through multiple markers map.
- Integration of payment gateways is provided.

- OTP generation will be initiated on every signup in mobile application.
- An inbox will be provided which gets recent updates from the server.

II. EXISTING SYSTEM

In the existing system every transaction of the user is done through manually the user has to meet bicycle parking slot personally, he has to submit all his details before parking. Price generation for the user was complex.

III. PROPOSED SYSTEM

In the proposed system the user can interact with the system with secured login and book a slot based on his choice and slot availability and later he can park his bicycle using tab login service. Price generation is automated so user can rely on the system. Sub admin can interact with the system and he can add location and manage slots easily, and hence the cost and the time required for adding and managing the slots will be less when compared with existing system. Super admin can manage vendors and also can add new language.

A. Product Perspective

Bicycle locking is developed using ionic 3 and PHP and the data will be stored in MySQL. Bicycle locking allows the users to book a parking slot for their bicycle based on their user's time preference. Sub admin manages end users and super admin manages sub admin.

Product Features: The main features include the following:

- OTP based registration.
- Nearby available slots display.
- Automated bill generation
- Since developed in ionic android, iOS and windows APK can be generated.
- Google map API used user interface.
- Slot Locking and unlocking hardware using Bluetooth technology,
- Integration of Payment gateways.

Assumptions and Dependencies: In regard to this project we assume the following:

- The user of the system must have fair knowledge of computer usage.
- The user must be connected through internet connection.
- The database of the system can be accessed only by the system administrator and sub administrator.

IV. LITERATURE SURVEY

Since the concept of the parking of bicycle is new. We have not found an exact representation of the project, there is lot of application that allows booking a parking slot for vehicles.

Park Zebra [1] is a mobile and web based application which allows booking for 2 and 4 wheelers based on user preferences.

In cities lot of people using bicycle but there no security for bicycle in a parking system. Bicycle may be theft from parking system [2]. This problem is handled in [3] this, but this is very long process and cost is very high.

This project overcomes that issue with suitable solution and security. In this project main feature is slot based security.

In this project we are using ionic for developing mobile apps [4]. Ionic support different platforms like Android, IOS and Windows[5]. And this project is integrated with hardware. Ionic has good support for hardware also. Ionic use cordova plugin for hardware communication [6]. In this project hardware communication is needed for locking and unlocking slot with Bluetooth technology [7].

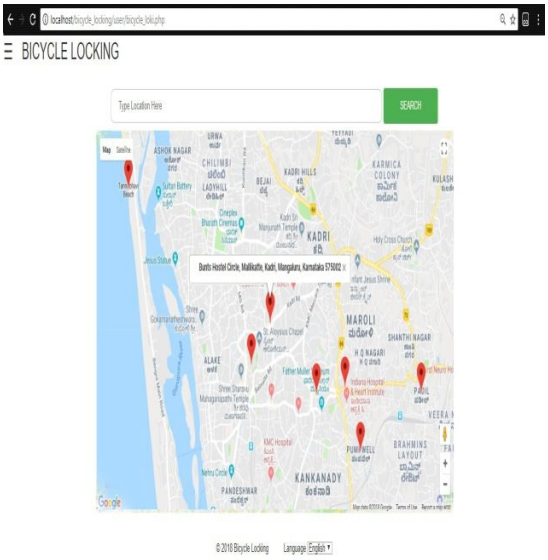
Web Application is developed in PHP and data base is MYSQL [8]. In Ionic we have used angular 4 technology because communication response is very fast [9].

V. IMPLEMENTATION

This project is mainly divided into 3 modules that is User, Sub admin and Super admin.

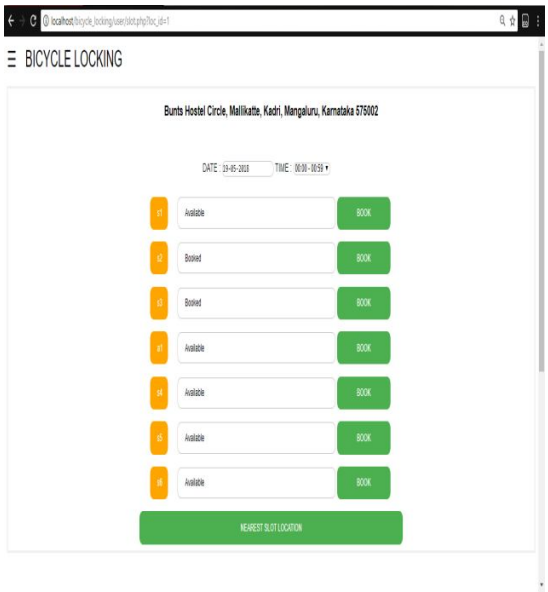
User:

User can use this application for booking parking slot for bicycle. User has to register and he has to use proper email and password for authentication.



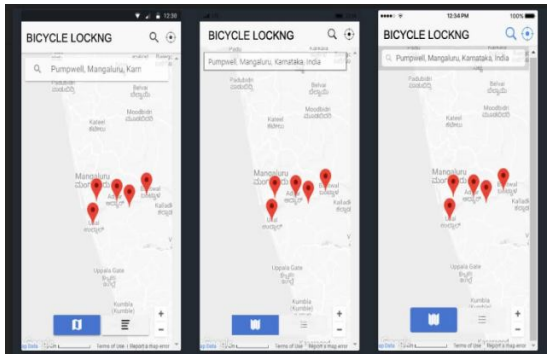
search location for users

Above figure shows search results of user. It will show multiple locations. Based on location user can book a slot for park bicycle.



location slot view for users

Above figure shows available slots for user. After booking of slot user has to make payment through online. User can also keeps track of all transactions, slot booking, preponing, postponing and waiting list , nearest slot availability ,bill generation etc…

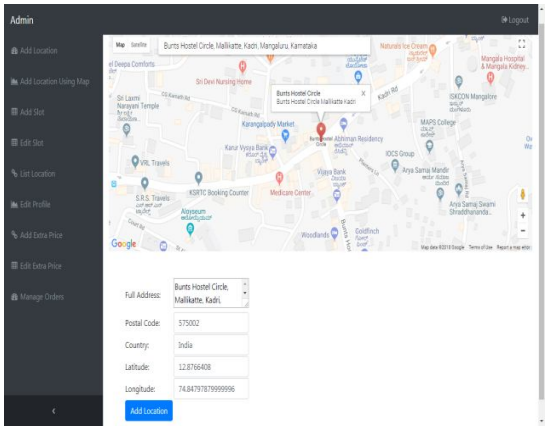


search location for users

Above figure shows interface of mobile application. Three sections indicates three platform that is Android, IOS and Widows.

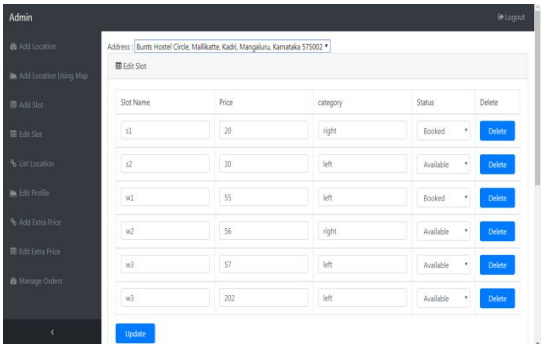
Sub Admin:

Sub admin can interact with the system and he can add location and manage slots easily, and hence the cost and the time required for adding and managing the slots will be less when compared with existing system.



Add location

Above figure shows add location of the parking slot. These locations will be displayed for users.



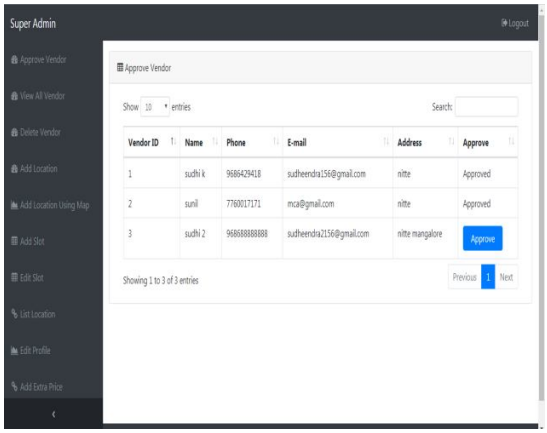
Edit slot details

Sub admin can add, delete and update slot details. And they can also edit location details.

Super Admin:

Super admin will provide a license to each sub admin. They provides license key to sub admin and manages monthly payment.

It develops locking and unlocking software and provides it to sub admin.



Approve vendor

Configuring hardware and software through smart screen using Bluetooth technology for locking and unlocking the slot.

Super admin have the privileges to add the different languages so that this application can be used across the world. Sub admin monitor users of particular location and sub admin is monitored by super admin.

VI. CONCLUSION

A bicycle locking mobile app and end user application is a web based application, which provides simple, easy and effective interface for the user. This application acts as a gateway between user and bicycle locking. It consist three modules that is Super admin, sub admin, user. The user has privilege book a parking slot based on his choice and slot availability. The user can also view nearest slot availability. Mobile application is developed using IONIC and end-users application using PHP. This application provides various functionality like user management, locking and unlocking using the tab's Bluetooth technology; And this application is time consuming and cost effective application. Sub admin can manages locations and slots. Super admin can manages all the sub admin.

VII. FUTURE ENHANCEMENTS

- SMS integration to give notification to the user whenever viewed slot is free.
- Discounts based on referred link registration.

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