



## **Cloud Based Parking Reservation System**

**Project Report**

**By**

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**UNDER THE GUIDANCE OF**

**PROF. BAEK-YOUNG CHOI**

- **FINAL PRESENTATION SLIDES**

## Cloud Based Parking System

By

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### Why?

- In today's era everything is becoming online. Why to waste time finding a parking spot for your vehicle on the destination ? When you can reserve the spot in one touch from anywhere.



## Features of the application

- There will be OAuth signing in for the app
- Map and list view will be provided for the locations.
- Users can book the slots with priority timing
- Available parking slots will be found out.
- Email Confirmation on booking with details and link for payment.
- Cloud based payment gateway with paypal.
- Secured as it is fully controlled by paypal where they can link their debit and credit card.
- User can get the reservation details, cancel it at any time or delete its account.



## Technologies used

- Google API's
- Paypals Sdk
- Boot Strap for designing
- Mean Stack
- Node.js
- Express.js
- Angular.js
- Cloud based Mongo DB





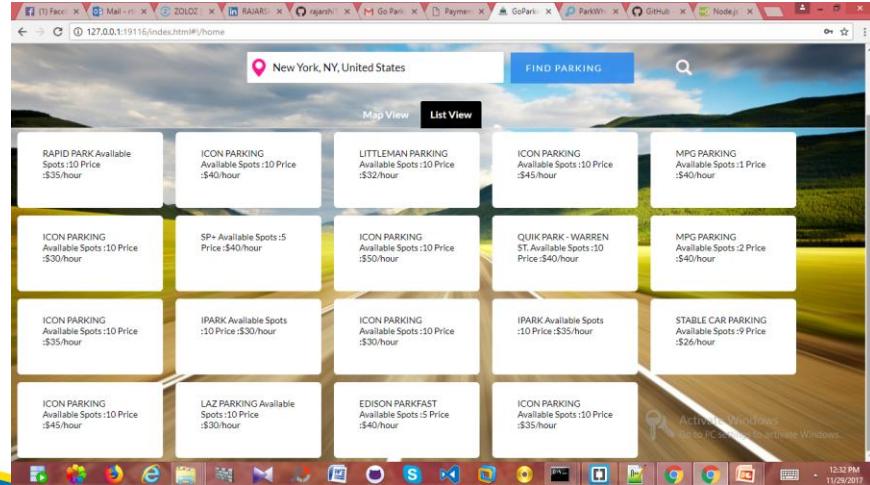
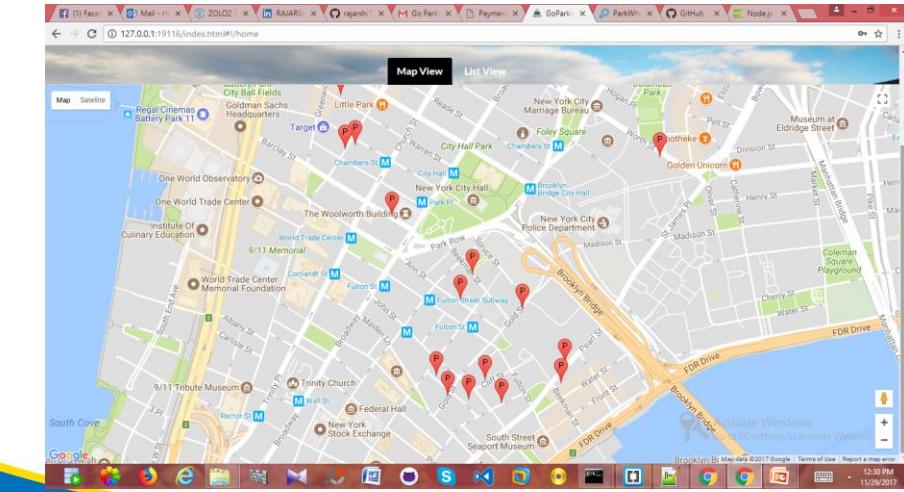
## Parkwhiz api

- Free API
- Add pricing Location
- Add Pricing
- Add Availability



- 
- Rest Service Call
  - Fetching the parking details
  - Shown in list and map view
  - Reserve respective slots
  - Use gmail as a service in node js to send email confirmation



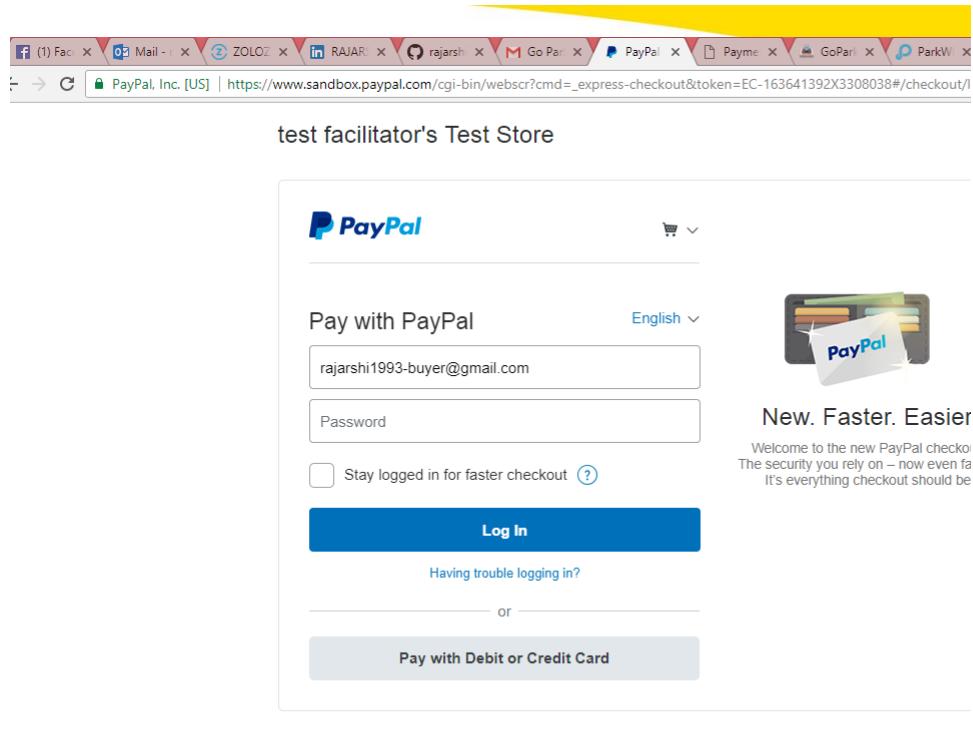




## Integration of Payment Gateway

- Email Confirmation is sent.
- It can be modified for multiple users.
- Payment Link is sent.
- Paypal SDK
- Use of Local tunnel.
- Sandbox accounts in paypal for creating virtual testing environment.





## FUTURE SCOPES

- Can be implemented in UMKC Parking system for the ease to access.
- Effective and Cheaper environment



## REFERENCES

- <http://wwwgoparking.com/>
- <https://wwwparkwhiz.com/developers/>
- <https://nodejs.org/en/get-involved/development/>
- <https://developer.paypal.com/>
- <https://wwwnpnjs.com/package/node-local-tunnel>



### • Individual Contribution

- **Rajarshi Tarafdar** - Design using BootStrap, CSS, Angular js implemented with html5, Reset, Login, List view, Profile Searching, Search locations, Implementation of parkwhiz api using mongo db, Implementation of node js and express js. Successful integration of paypal gateway/sdk, integration between modules, Equal participation in Project report and presentation slides.
- **Harmeet Singh** - Designing using BootStrap for user interface, CSS, Angular js implemented with html5, Registration page, Map view and Fetching data, Deletion and account updation, Cancel Reservation, Implementation of node js, Express js and API's fetching synchronization, Integration between modules, Equal participation in Project report and presentation slides.

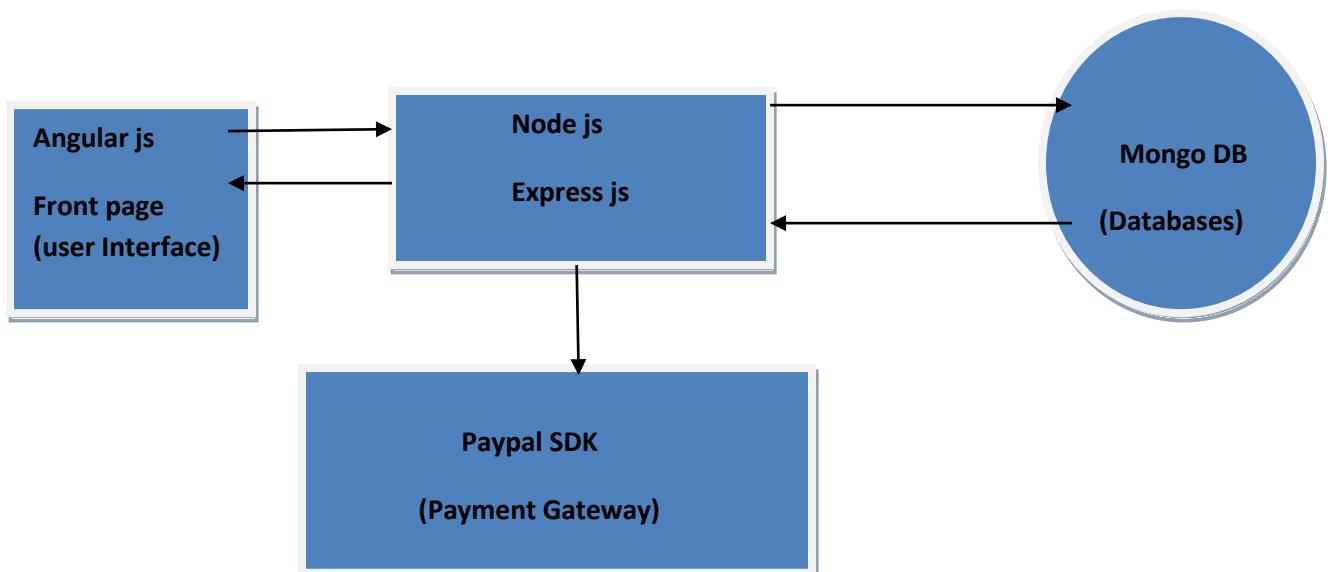
- **Motivation**

As everything now-a-days online and one click, so why not parking system. It will not only increase the ease access to parking but also can be efficiently used. So we were in search for API which could be applied to parking lots. We find parkwhiz API. If any organization uses it then it can only take care of its business without taking the remaining responsibilities. It can simply add the availability, price and location to their website or application.

- **Tool and Technology-**

- **Languages used** -Node js,css,angular js,express js,mongo db
- **Tools used:** Bracket/webstorm, Localtunnel
- **Sdk installed in node js:** paypal sdk

- **Architecture Diagram:**



- Flow of application is demonstrated by the screenshots below.

## Running server

Administrator: Command Prompt - node server.js

```
C:\Windows\system32>g:
G:>cd G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master
G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master>node server.js
module.js:538
    throw err;

Error: Cannot find module 'express'
at Function.Module._resolveFilename (module.js:536:15)
at Function.Module._load (module.js:466:25)
at Module.require (module.js:579:17)
at require (internal/module.js:11:18)
at Object.<anonymous> (G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master\server.js:1:??)
at Module._compile (module.js:635:30)
at Object.Module._extensions..js (module.js:646:10)
at Module.load (module.js:554:32)
at tryModuleLoad (module.js:497:12)
at Function.Module._load (module.js:489:3)

G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master>node server.js
module.js:538
    throw err;

Error: Cannot find module 'express'
at Function.Module._resolveFilename (module.js:536:15)
at Function.Module._load (module.js:466:25)
at Module.require (module.js:579:17)
at require (internal/module.js:11:18)
at Object.<anonymous> (G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master\server.js:1:??)
at Module._compile (module.js:635:30)
at Object.Module._extensions..js (module.js:646:10)
at Module.load (module.js:554:32)
at tryModuleLoad (module.js:497:12)
at Function.Module._load (module.js:489:3)

G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master> npm install express
npm WARN paypal-integration-using-nodejs@1.0.0 No repository field.

+ express@4.16.2
added 48 packages in 39.8s

?
  Update available 5.5.1 → 5.6.0
  Run npm i -g npm to update
```

G:\paypal-integration-using-nodejs-master\paypal-integration-using-nodejs-master>node server.js  
app listening on 3000

Activate Windows  
Go to PC settings to activate Windows.

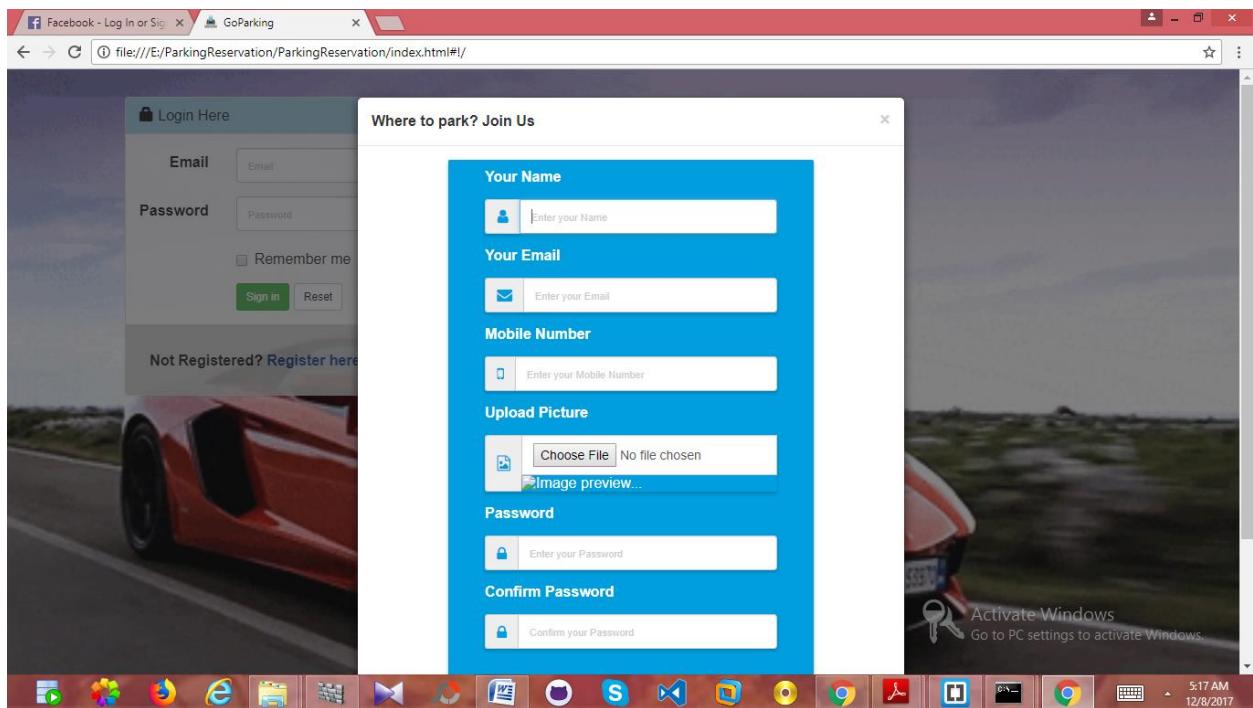
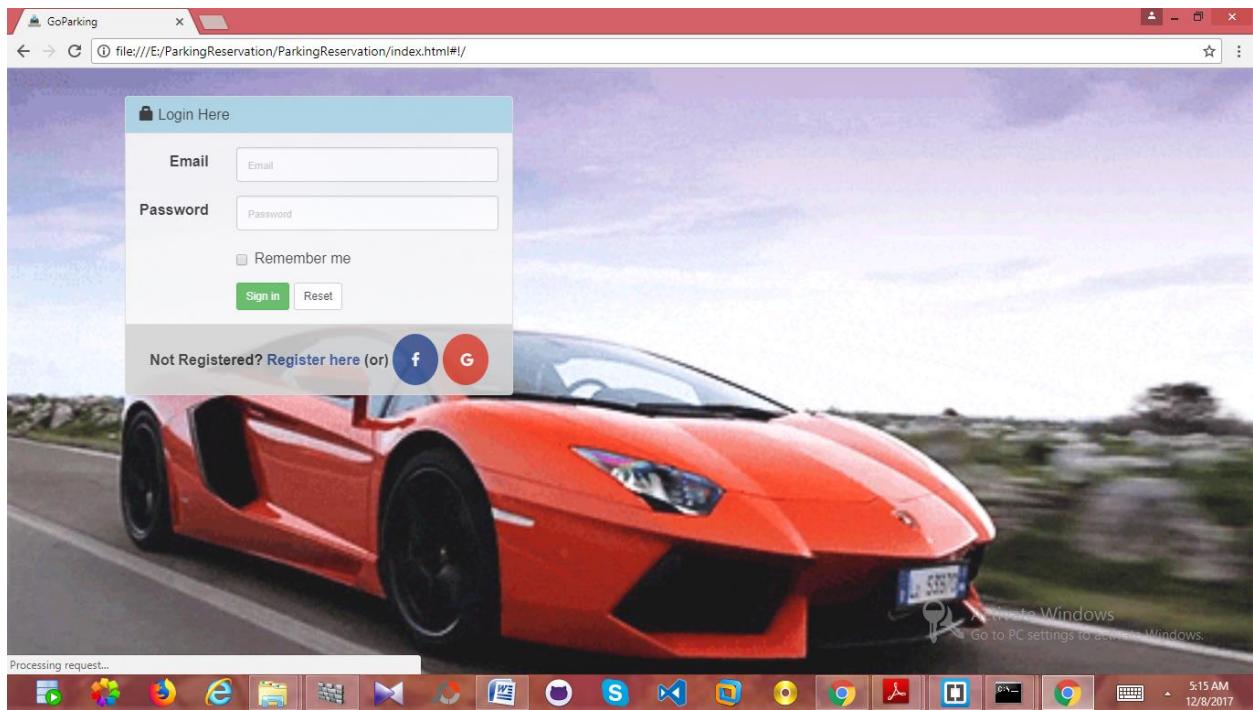
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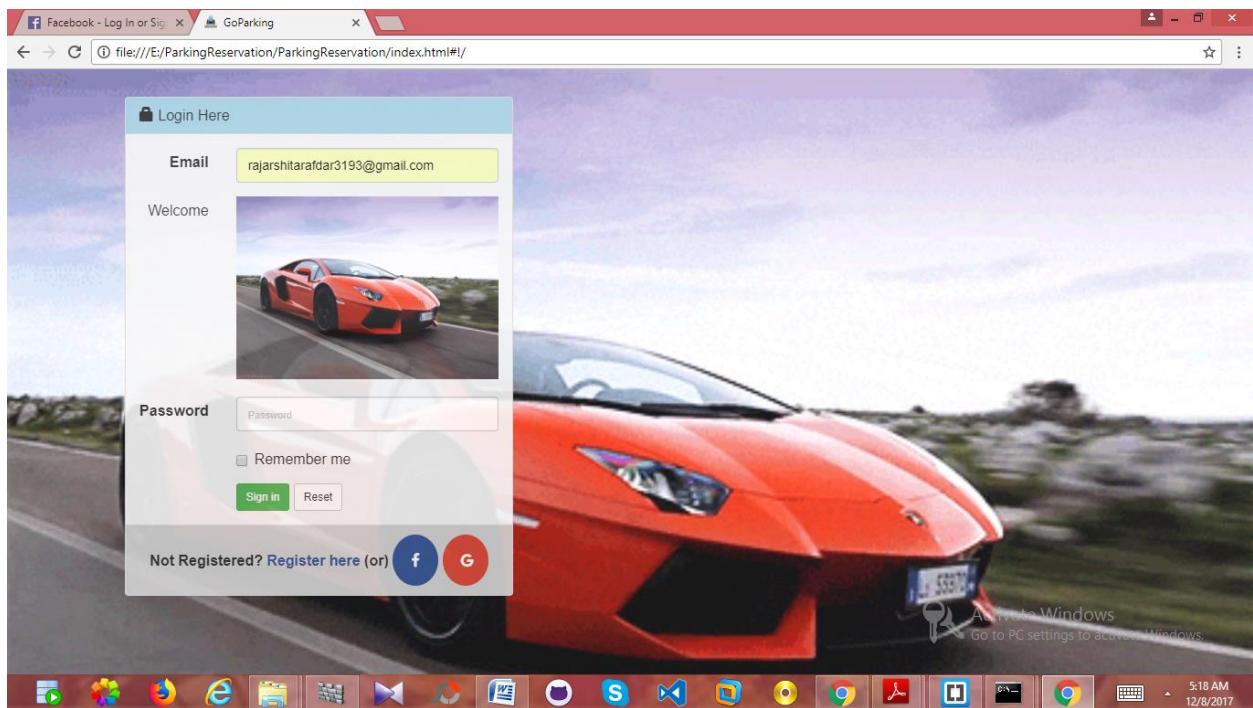
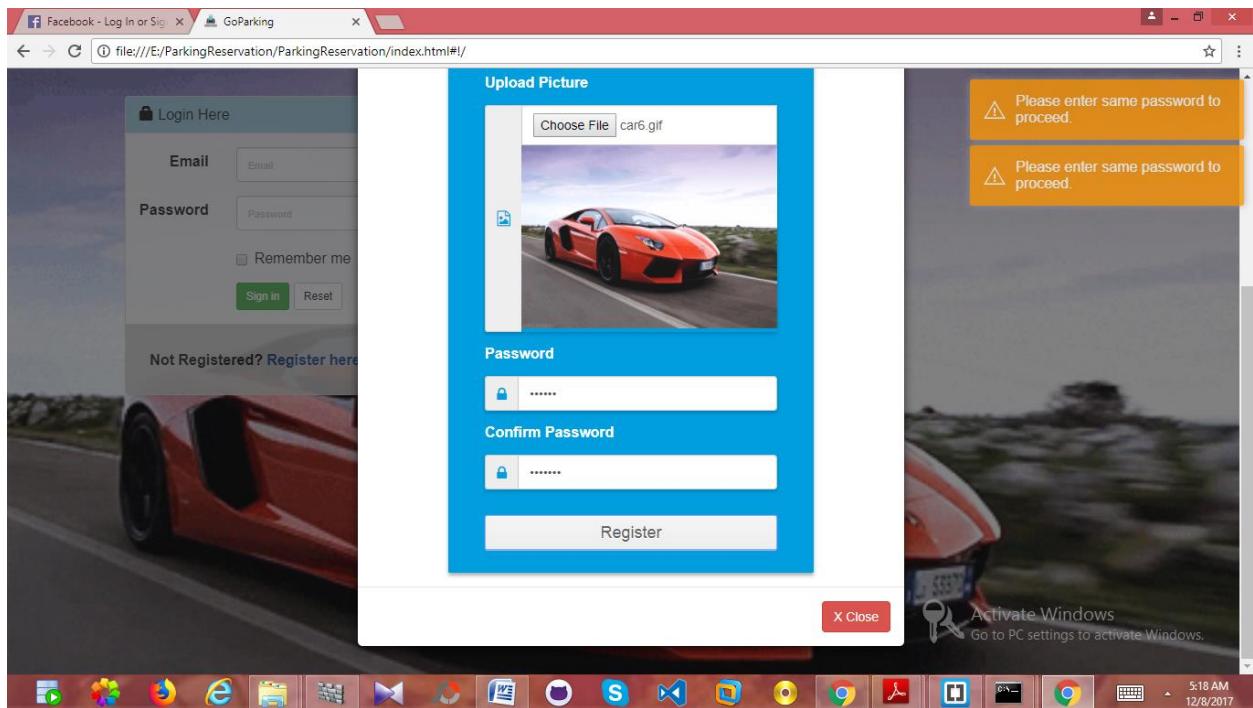
Command Prompt - node mongo.js

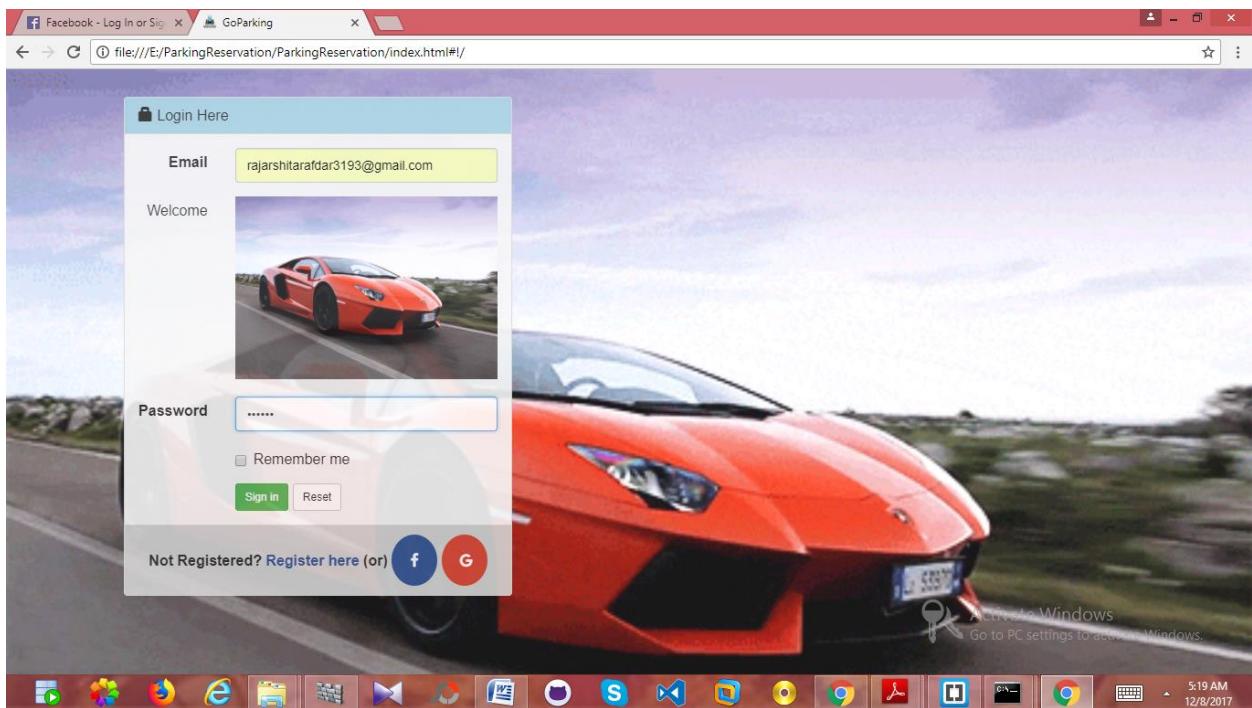
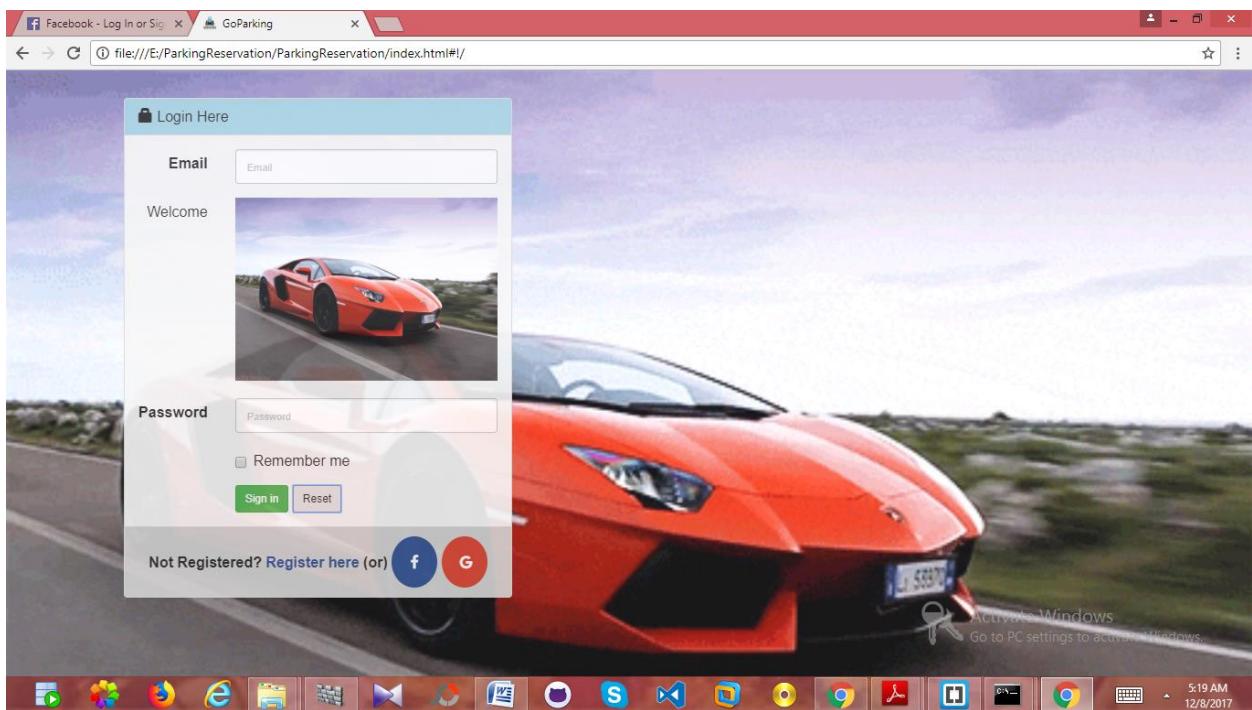
```
E:>cd E:\ParkingReservation\ParkingReservation\JS
E:\ParkingReservation\ParkingReservation\JS>node mongo.js
Example app listening at http://:8081
```

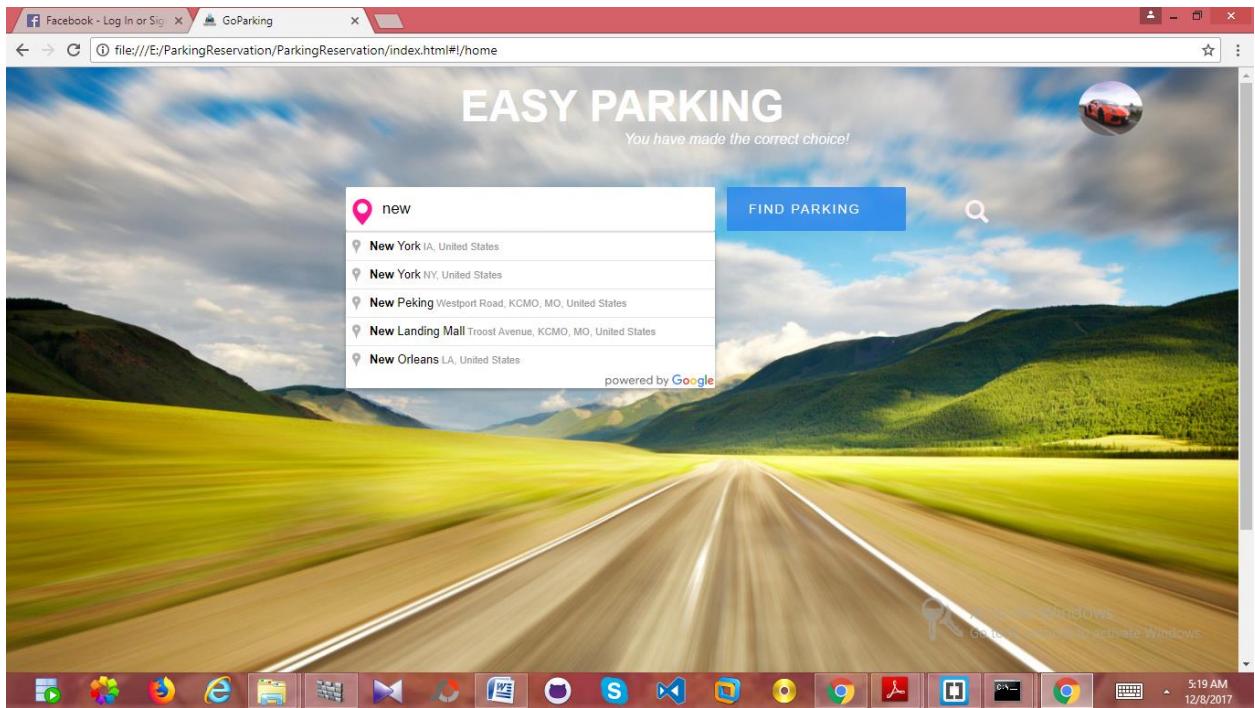
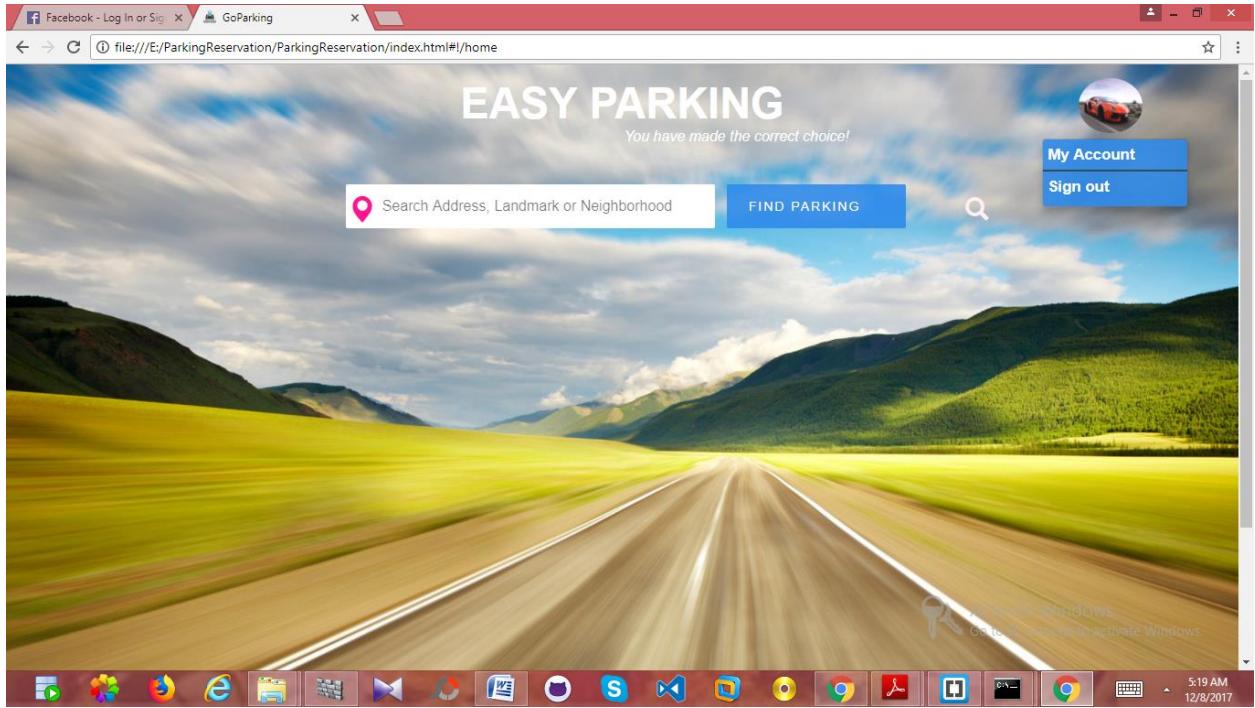
Activate Windows  
Go to PC settings to activate Windows.

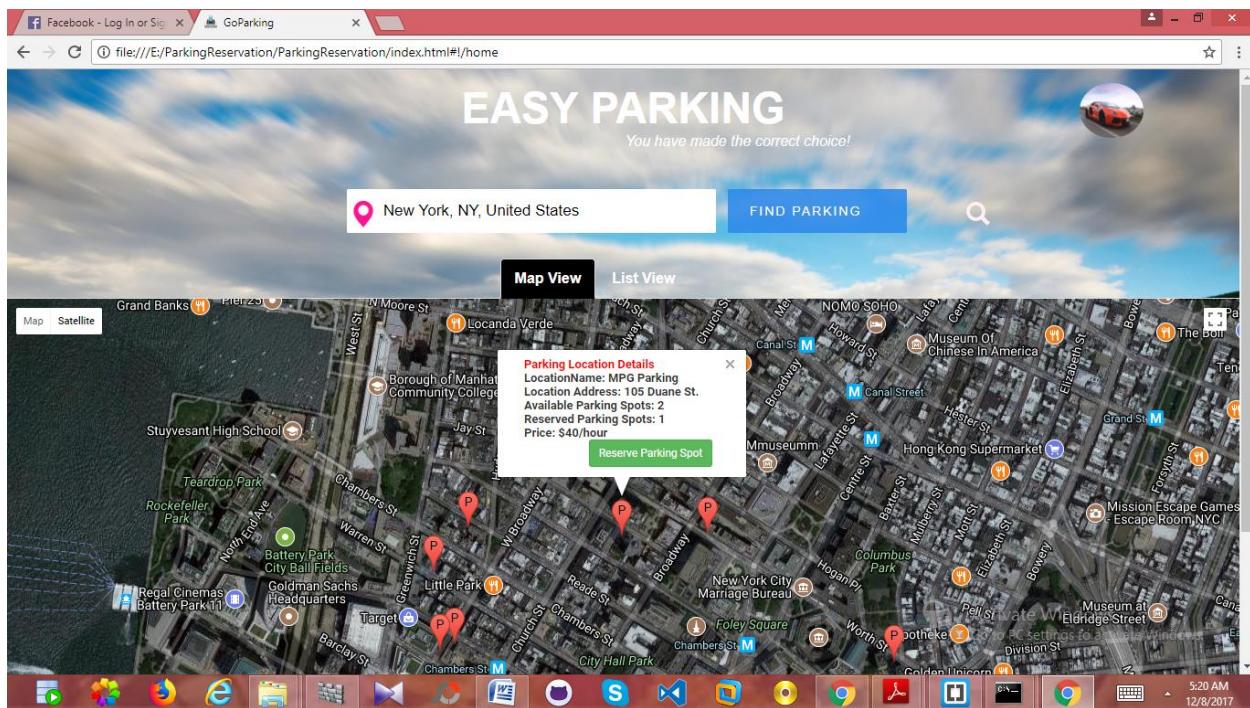
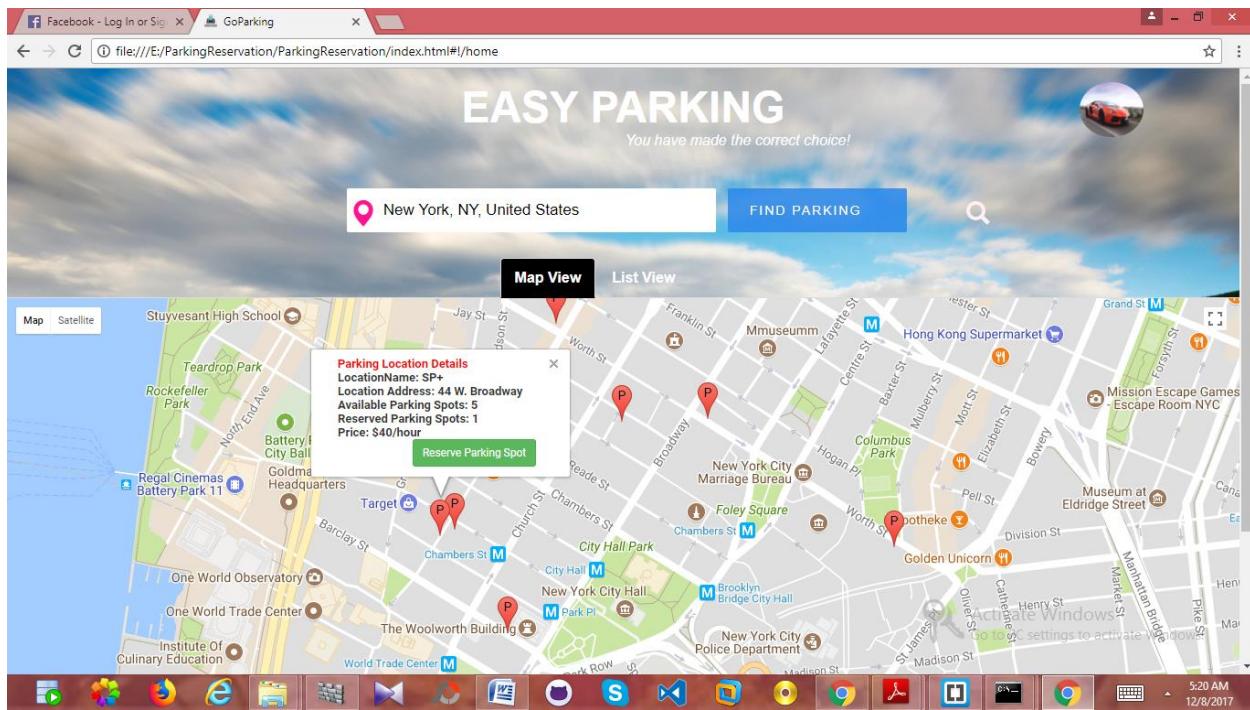
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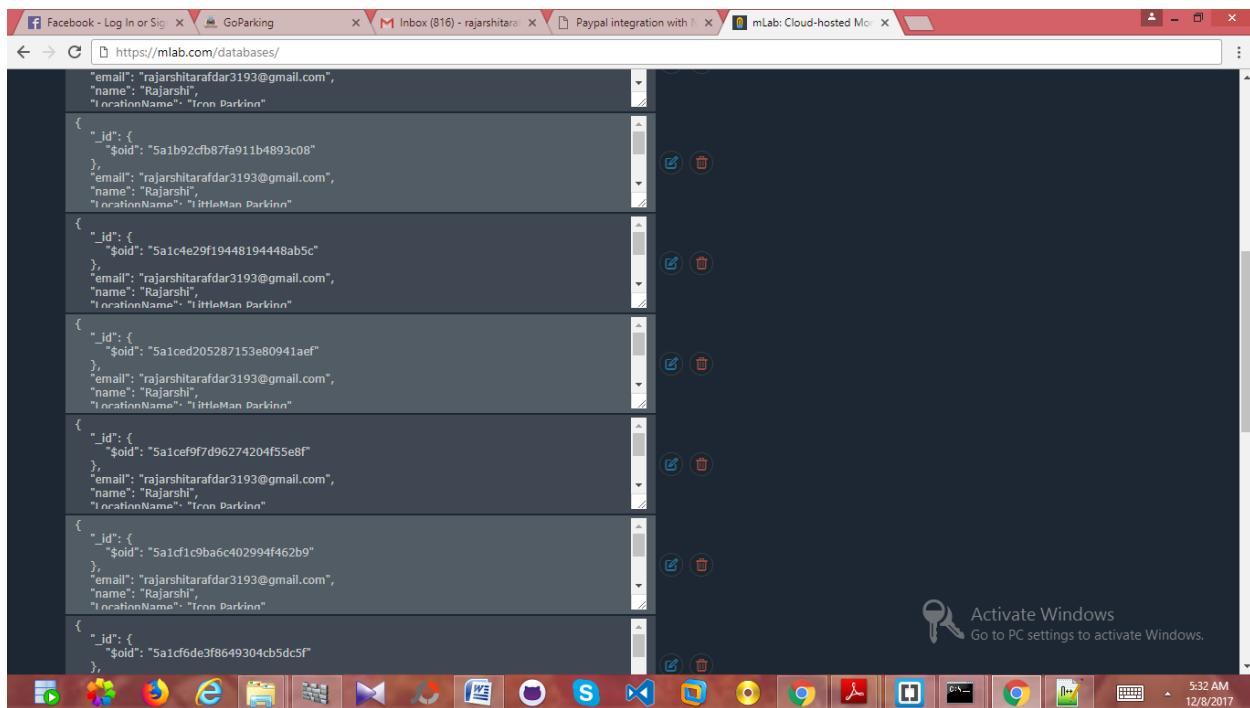
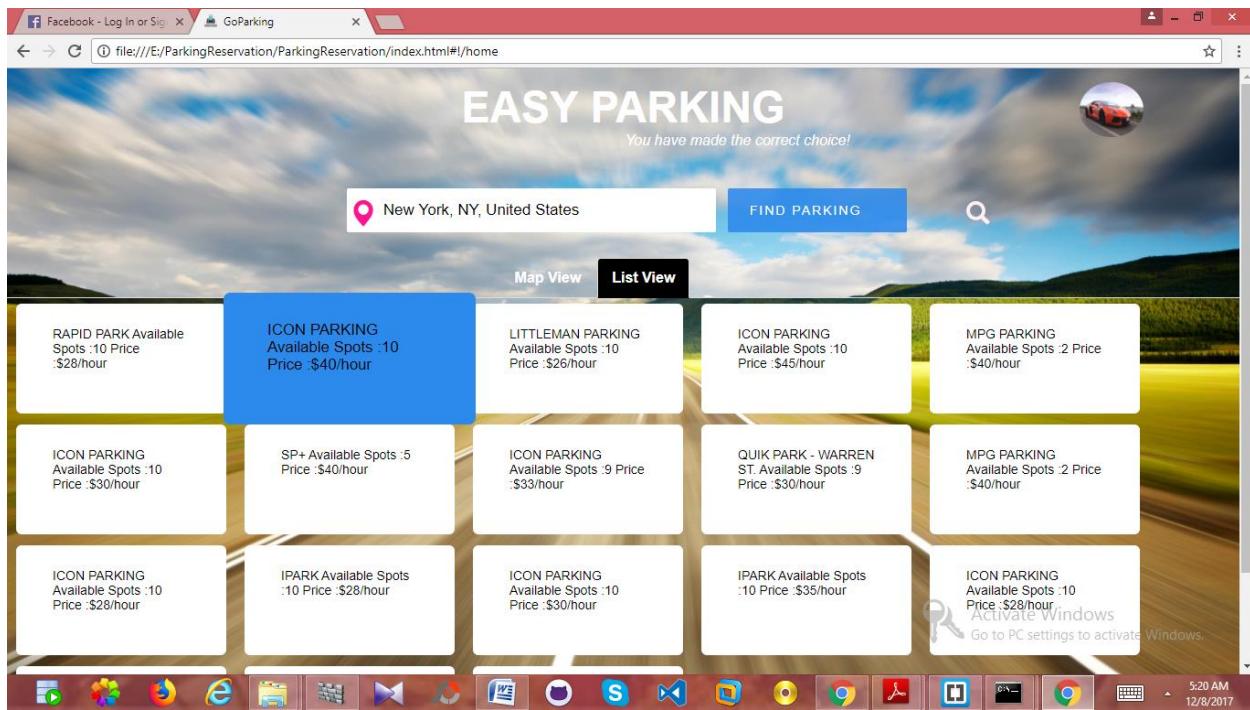


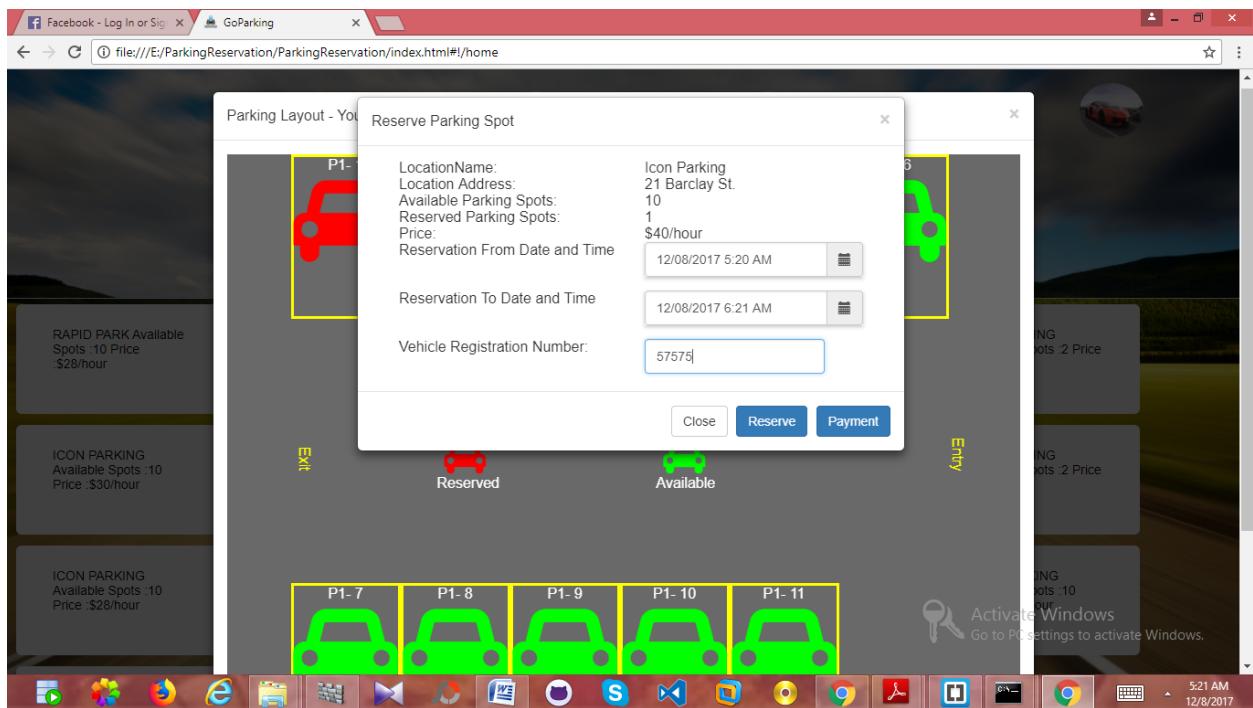












Facebook - Log In or Sign Up GoParking

file:///E:/ParkingReservation/ParkingReservation/index.html#/home

# EASY PARKING

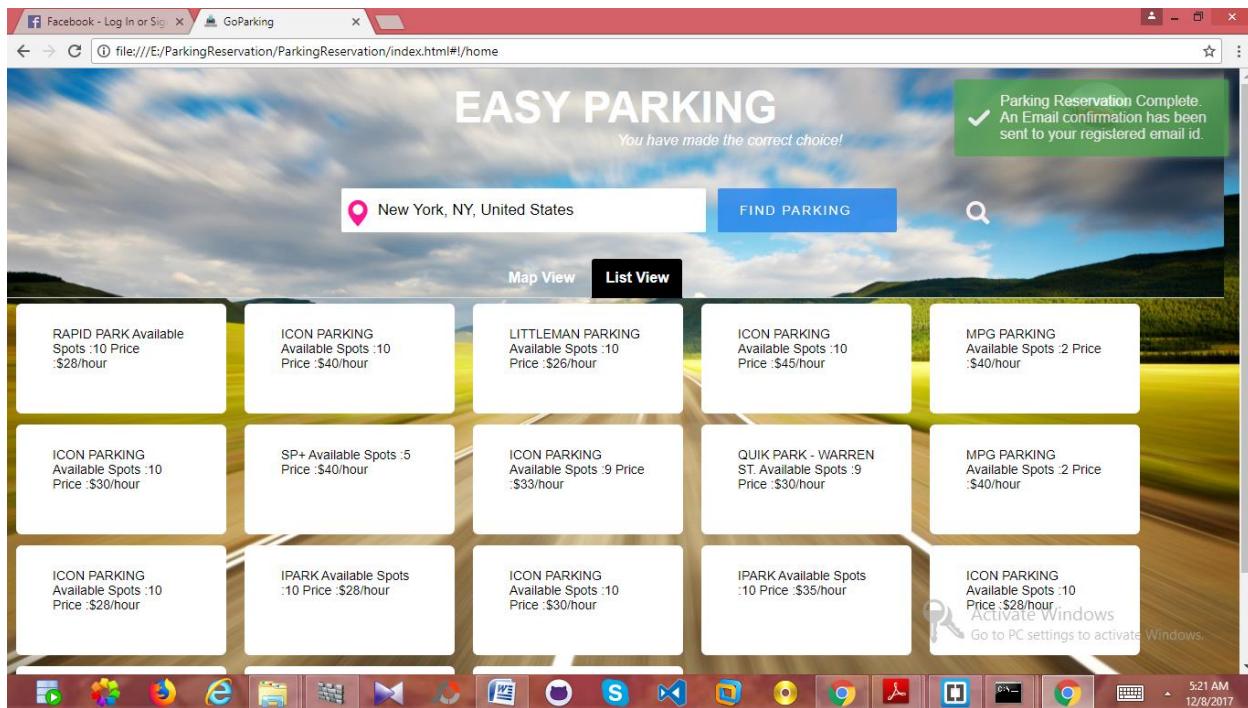
You have made the correct choice!

New York, NY, United States FIND PARKING

Map View List View

RAPID PARK Available Spots :10 Price :\$28/hour	ICON PARKING Available Spots :10 Price :\$40/hour	LITTLEMAN PARKING Available Spots :10 Price :\$26/hour	ICON PARKING Available Spots :10 Price :\$45/hour	MPG PARKING Available Spots :2 Price :\$40/hour
ICON PARKING Available Spots :10 Price :\$30/hour	SP+ Available Spots :5 Price :\$40/hour	ICON PARKING Available Spots :9 Price :\$33/hour	QUIK PARK - WARREN ST. Available Spots :9 Price :\$30/hour	MPG PARKING Available Spots :2 Price :\$40/hour
ICON PARKING Available Spots :10 Price :\$28/hour	IPARK Available Spots :10 Price :\$28/hour	ICON PARKING Available Spots :10 Price :\$30/hour	IPARK Available Spots :10 Price :\$35/hour	ICON PARKING Available Spots :10 Price :\$28/hour Activate Windows Go to PC settings to activate Windows.

5:21 AM 12/8/2017



Facebook - Log In or Sign Up GoParking - Reservation

Secure | https://mail.google.com/mail/u/0/#inbox/16035dc6bbde7fb6

Google

Click here to enable desktop notifications for Gmail. [Learn more](#) [Hide](#)

Gmail COMPOSE

Inbox (816)

Starred Sent Mail Drafts (11) More

R Rajarshi +

goparkinghost@gmail.com to me 5:21 AM (0 minutes ago)

Parking Location Details  
LocationName: Icon Parking  
Location Address: 21 Barclay St.  
From Date Time: 12/08/2017 5:20 AM  
To Date Time: 12/08/2017 6:21 AM  
Price: \$40/hour  
Vehicle Registration Number: 57575  
Reservation Status: Reserved  
[Please proceed to make payment](#)

Click here to Reply or Forward

0.7 GB (4%) of 15 GB used [Manage](#)

[Terms - Privacy](#)

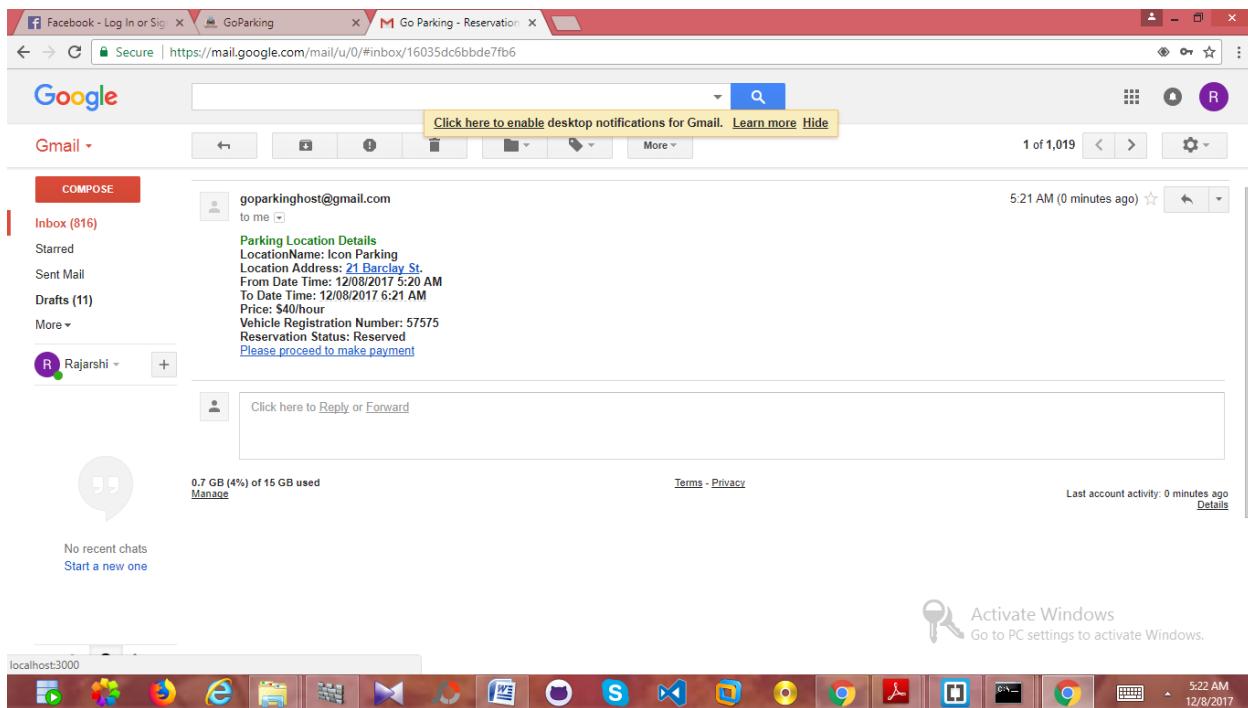
Last account activity: 0 minutes ago [Details](#)

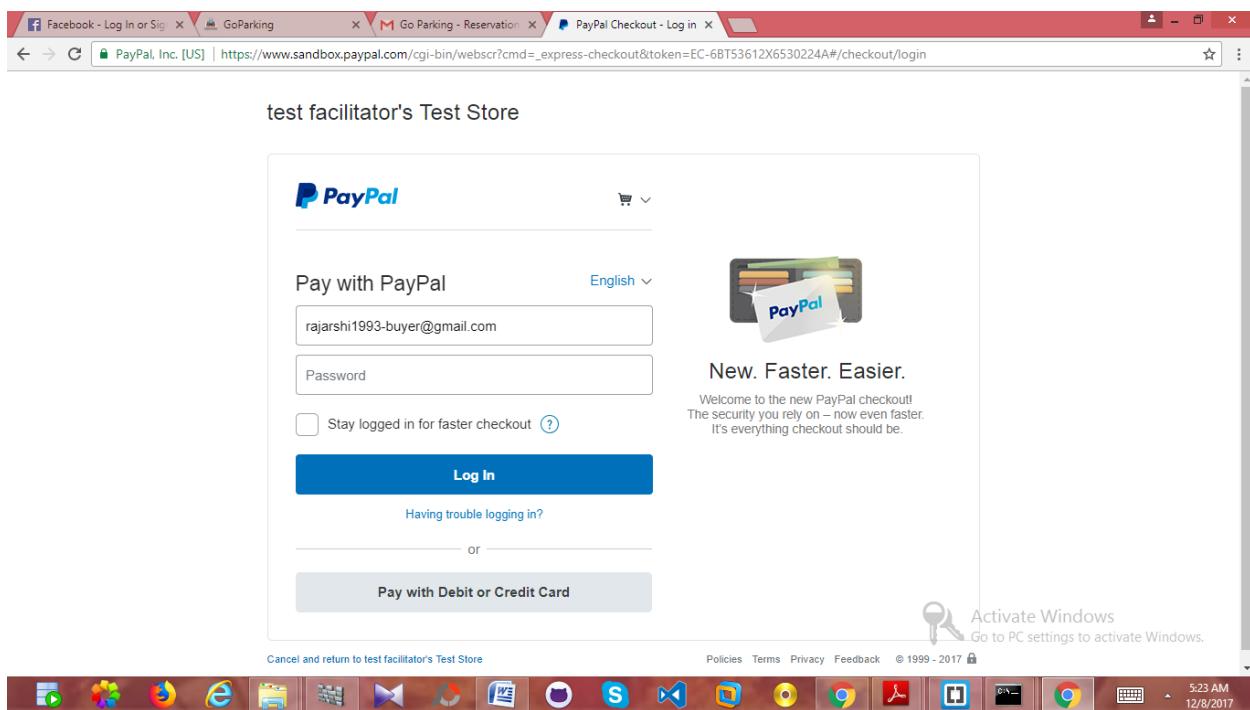
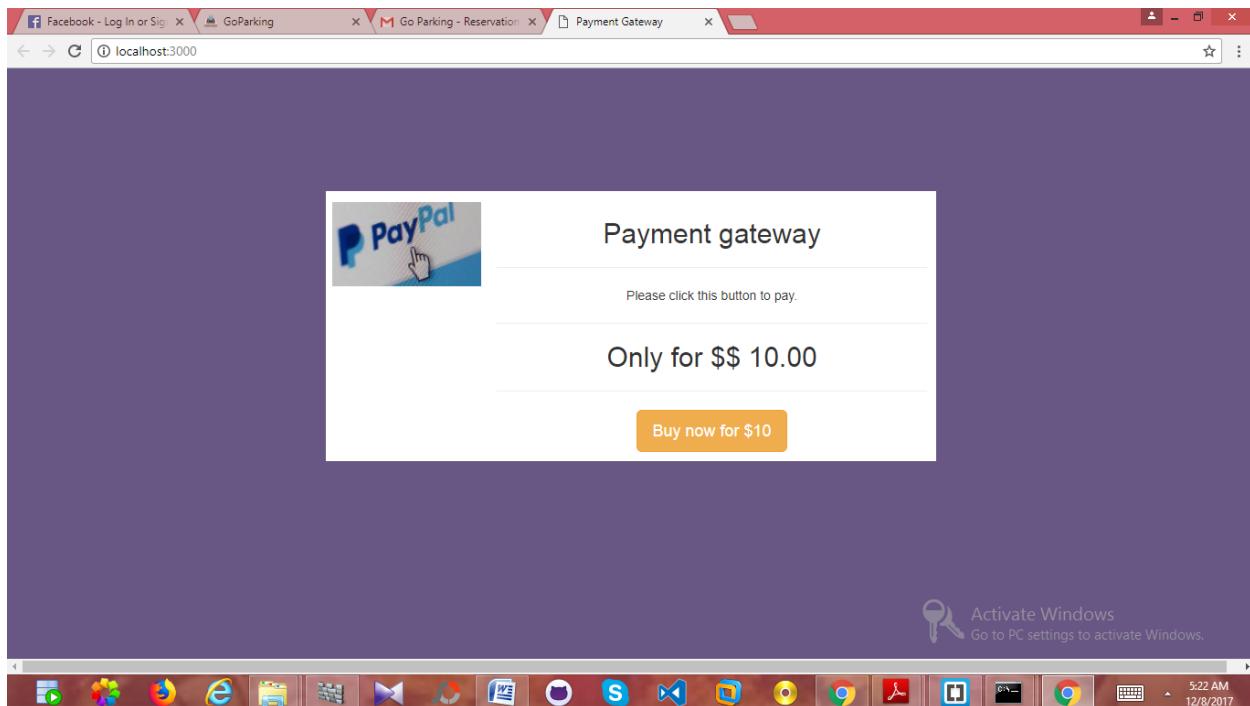
No recent chats Start a new one

localhost:3000

Activate Windows Go to PC settings to activate Windows.

5:22 AM 12/8/2017





Facebook - Log In or Sign Up GoParking PayPal Checkout - Create...

PayPal, Inc. [US] | https://www.sandbox.paypal.com/webapps/xoboarding?country.x=US&exp=guest&locale.x=en\_US&token=EC-6BT53612X6530224A#/checkout/guest

**PayPal Guest Checkout**

We don't share your financial details with the merchant.

Country: United States

Card type:

Card number: 8466 4826 8686

The merchant only accepts Discover, American Express, Visa, MasterCard

First name: Last name:

**Billing address**

Street address:

Apt., ste., bldg.:

 PayPal is the safer, easier way to pay

No matter where you shop, we keep your financial information secure.

Activate Windows Go to PC settings to activate Windows.

5:23 AM 12/8/2017

Facebook - Log In or Sign Up GoParking PayPal Checkout - Create...

PayPal, Inc. [US] | https://www.sandbox.paypal.com/webapps/xoboarding?country.x=US&exp=guest&locale.x=en\_US&token=EC-6BT53612X6530224A#/checkout/guest

test facilitator's Test Store

**PayPal Guest Checkout**

We don't share your financial details with the merchant.

Country: United States

Card type:

Card number: 8466 4826 8686

Enter a valid card number 08/17 CSC 999

First name: Rajarshi Last name: Tarafdar

**Billing address**

Street address: Tracy Ave

 PayPal is the safer, easier way to pay

No matter where you shop, we keep your financial information secure.

Activate Windows Go to PC settings to activate Windows.

5:24 AM 12/8/2017

Facebook - Log In or Sign Up GoParking PayPal Checkout - Log in

PayPal, Inc. [US] | https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=\_express-checkout&token=EC-6BT53612X6530224A#/checkout/login

### test facilitator's Test Store

**Pay with PayPal**

English ▾  
rajarshi1993-buyer@gmail.com  
.....  
**Log In**

Having trouble logging in?  
or  
**Pay with Debit or Credit Card**

New. Faster. Easier.  
Welcome to the new PayPal checkout!  
The security you rely on – now even faster.  
It's everything checkout should be.

Cancel and return to test facilitator's Test Store Policies Terms Privacy Feedback © 1995-2017 Activate Windows Go to PC settings to activate Windows.

Facebook - Log In or Sign Up GoParking PayPal Checkout - Review

PayPal, Inc. [US] | https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=\_express-checkout&token=EC-6BT53612X6530224A#/checkout/review

### test facilitator's Test Store

Hi, test!

**Ship to** Change >  
test buyer  
1 Main St, San Jose, CA 95131 United States

**Pay with** Change >  
PayPal Balance  
Visa x-7575 (backup)  
+ **Apply for PayPal Credit**  
Get more time to pay \$39.00  
Subject to credit approval. See terms

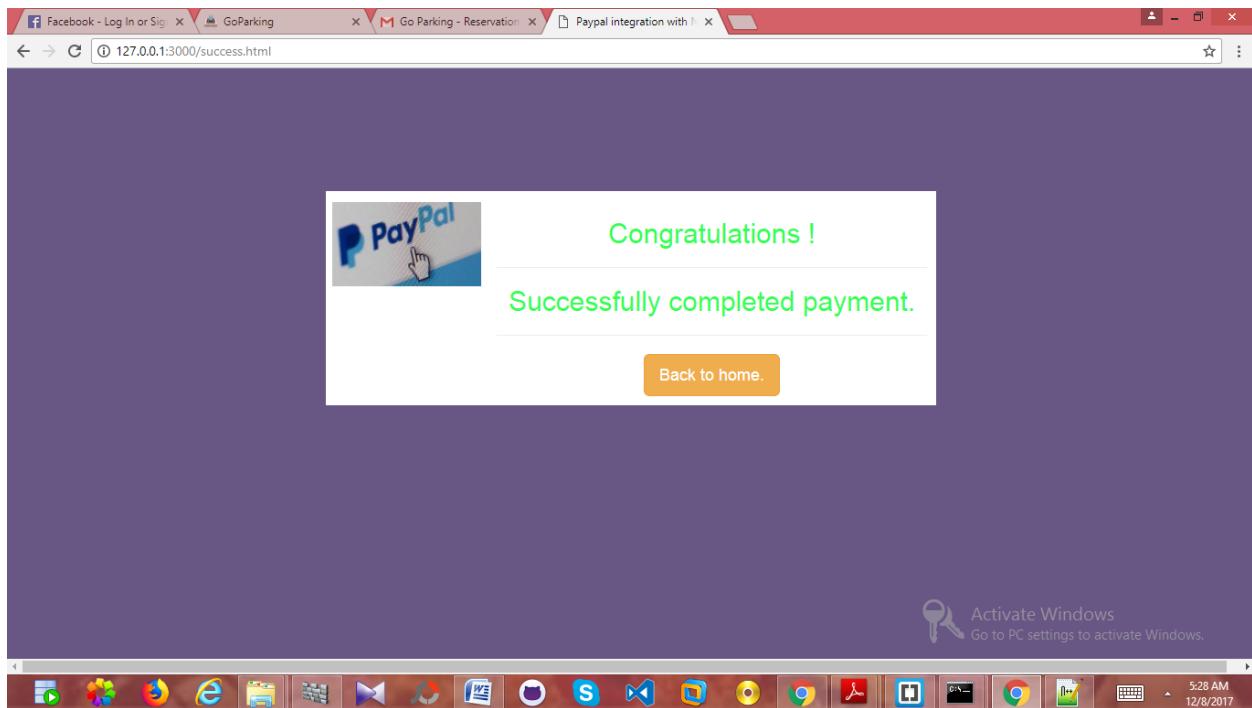
View [PayPal Policies](#) and your payment method rights.

**Continue**

You'll be able to review your order before you complete your purchase.  
If money is added to your PayPal balance before this transaction completes, the additional balance may be used to complete your payment. [Learn more](#)

Activate Windows  
Go to PC settings to activate Windows.

5:25 AM 12/8/2017



- **Challenges faced:**

- Integration of paypal account.
- During installation of SDK caused due to npm
- Linkage of Sending confirmation email.
- Implementation of local tunnel

- **Solutions to challenges faced:**

- SDK was successfully installed if it was synchronized with the current version of npm.
- Sending email was lastly achieved by using node js and gmail as a service.
- Local tunneling was used from cmd.

- **Links:**
- **Github**(project management tool)-  
<https://github.com/hsingh08/Cloud-Computing-Project>
- **Video-**  
<https://www.youtube.com/watch?v=U0bYSbOry0g&feature=youtu.be>

- **Future Directions and Scopes-**

This further can be implemented using the name plate recognition can be integrated with our application. This can also be implemented by UMKC parking system for better management and facilitate the access to users.

- **Installation and Deployment steps-**

1>Install npm(node js)(depends on version)

2>Checking the version of:

- Npm -v
- Node -v

3>To run a particular node js file-Run filename.js

4>To install various dependencies Npm install modulename

5>To install express js run install npm express module

6>Install mongo db module in npm

7>Install paypal sdk by running npm install modulename (paypal-sdk)

8>Make sandbox account in paypal,one for buyer and another for seller.Sandbox is a virtual paypal environment where we can tests like real environment and access the paypal api.

9>Configure the sandbox environment

10>Note the client id and client secret which we need to give in the node js to access the paypal api.

- **REFERENCES:**
- <http://www.go-parking.com/>
- <https://www.parkwhiz.com/developers/>
- <https://nodejs.org/en/get-involved/development/>
- <https://developer.paypal.com/>
- <https://www.npmjs.com/package/node-local-tunnel>