MYWAYPOINTS

DISTRIBUTED SYSTEMS

PROJECT-1

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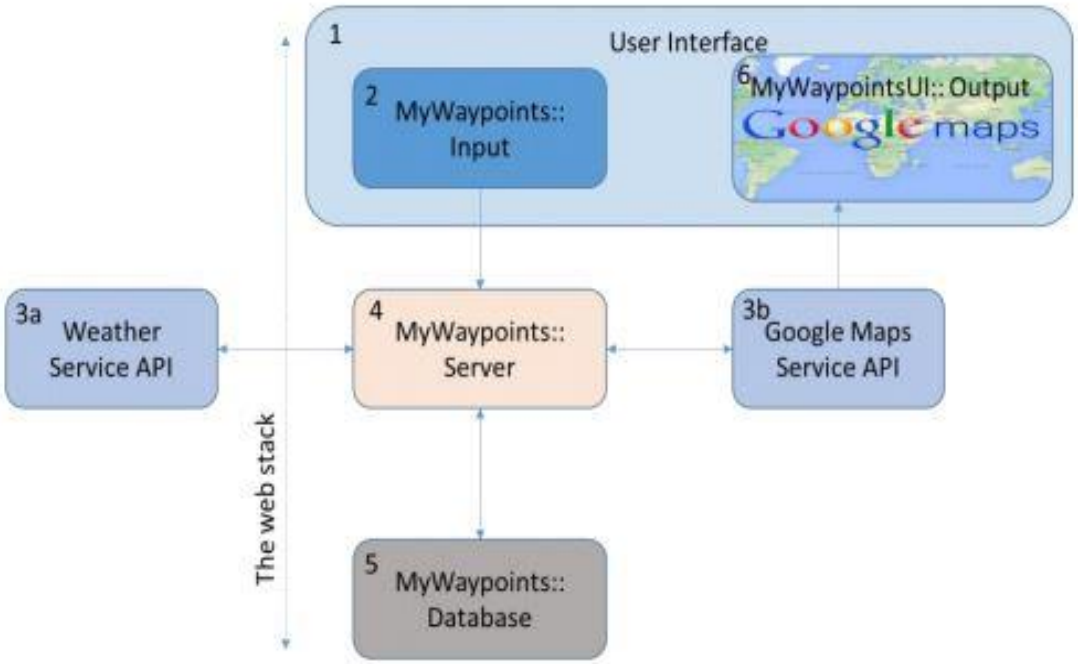
1. INTRODUCTION

Typical “map” applications provide the route, towns/cities along the route, alternate routes, and may be gas station locations.Our APP gives more than that. We give weather not only at the starting point and the destination, but also at the towns/cities along the way. Simply put, when a user inputs “From” and “To” locations on MyWaypoints, you will have to figure out the weather predicted for a given route and display it in a user-friendly form.

2. STACK

Our Project is done on LAMP Stack. The frontend is done using HTML, CSS, and Javascript and the backend was built on PHP and deployed on Apache server and MYSQL database for the second version.

3. ARCHITECTURE



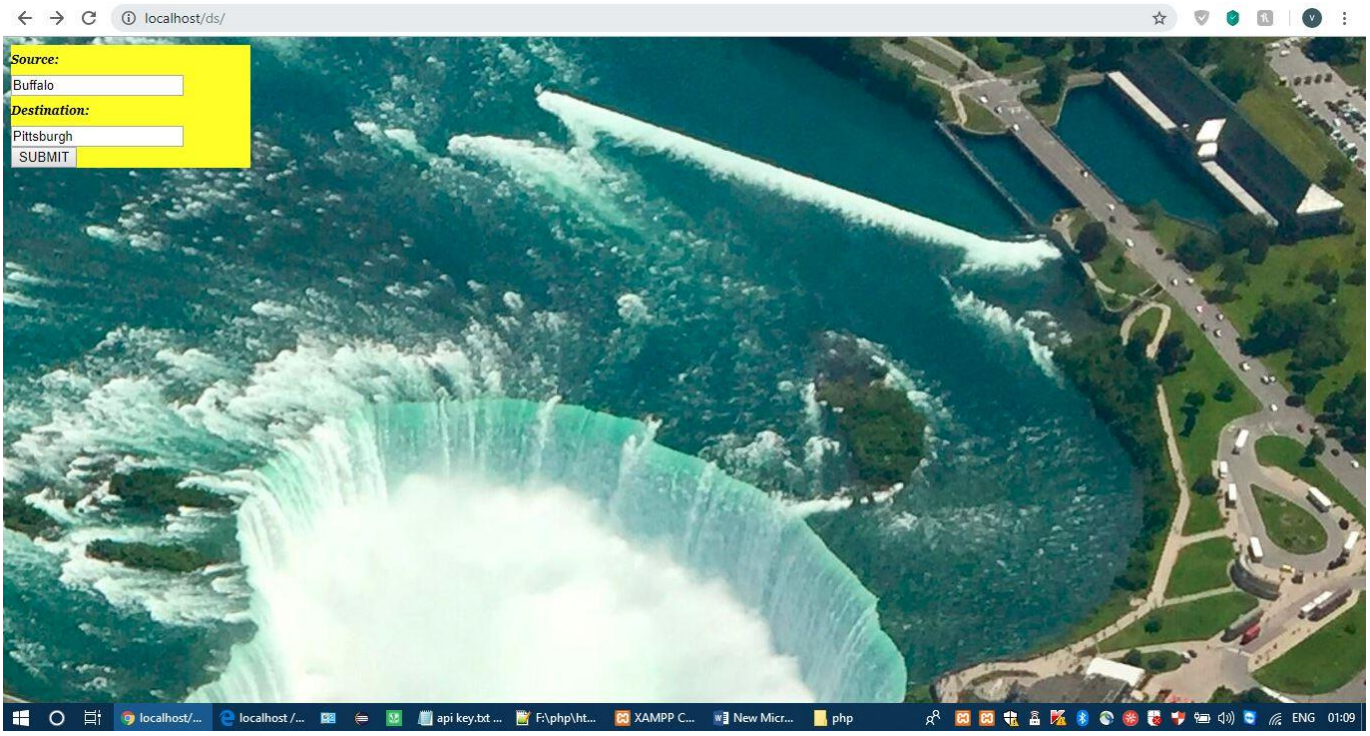
4. VERSIONS

There are two versions of the project. Version1 uses the API's to call to return the route details and Version2 uses the databse to return the details if it already has the details. There are 3 cost functions which compare the versions runtime.

Cost functions- c1, c2, c3.

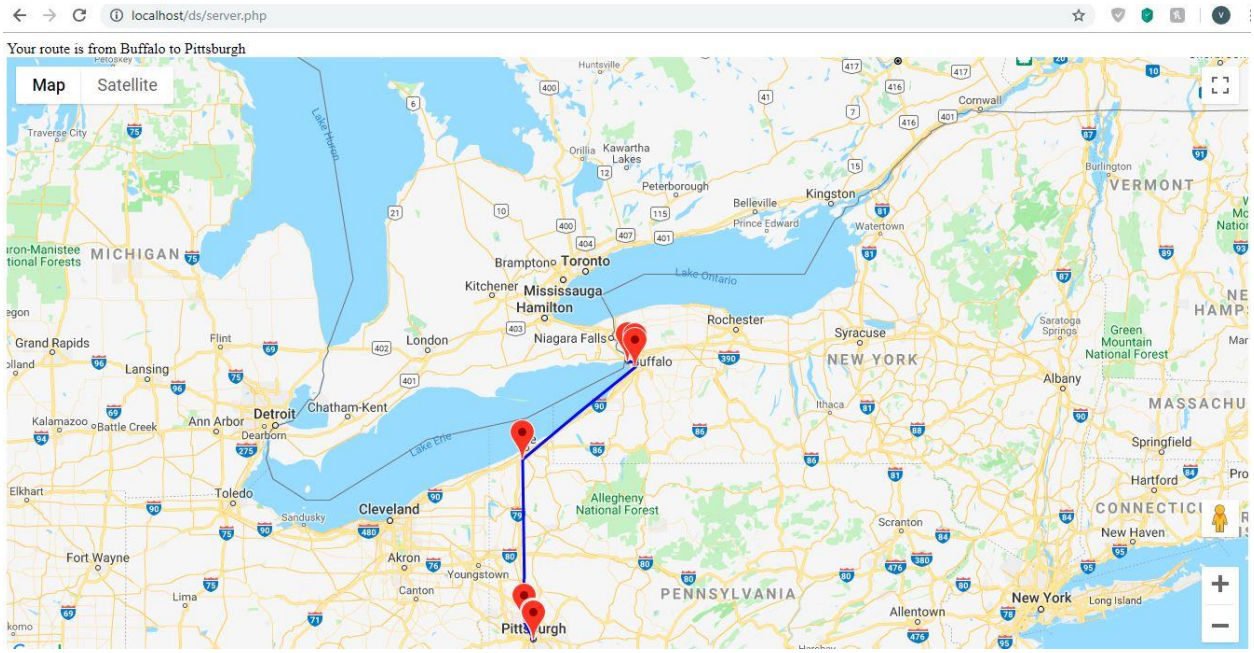
5. SCREENSHOTS

5.1. Index Page



This is the index page which takes the source and destination details and calls the API's, i.e. GoogleMaps Directions API and OpenWeatherAPI. All the results come from the API's. The API's get the real time data show the reults on the browser page.

5.2. Result Page

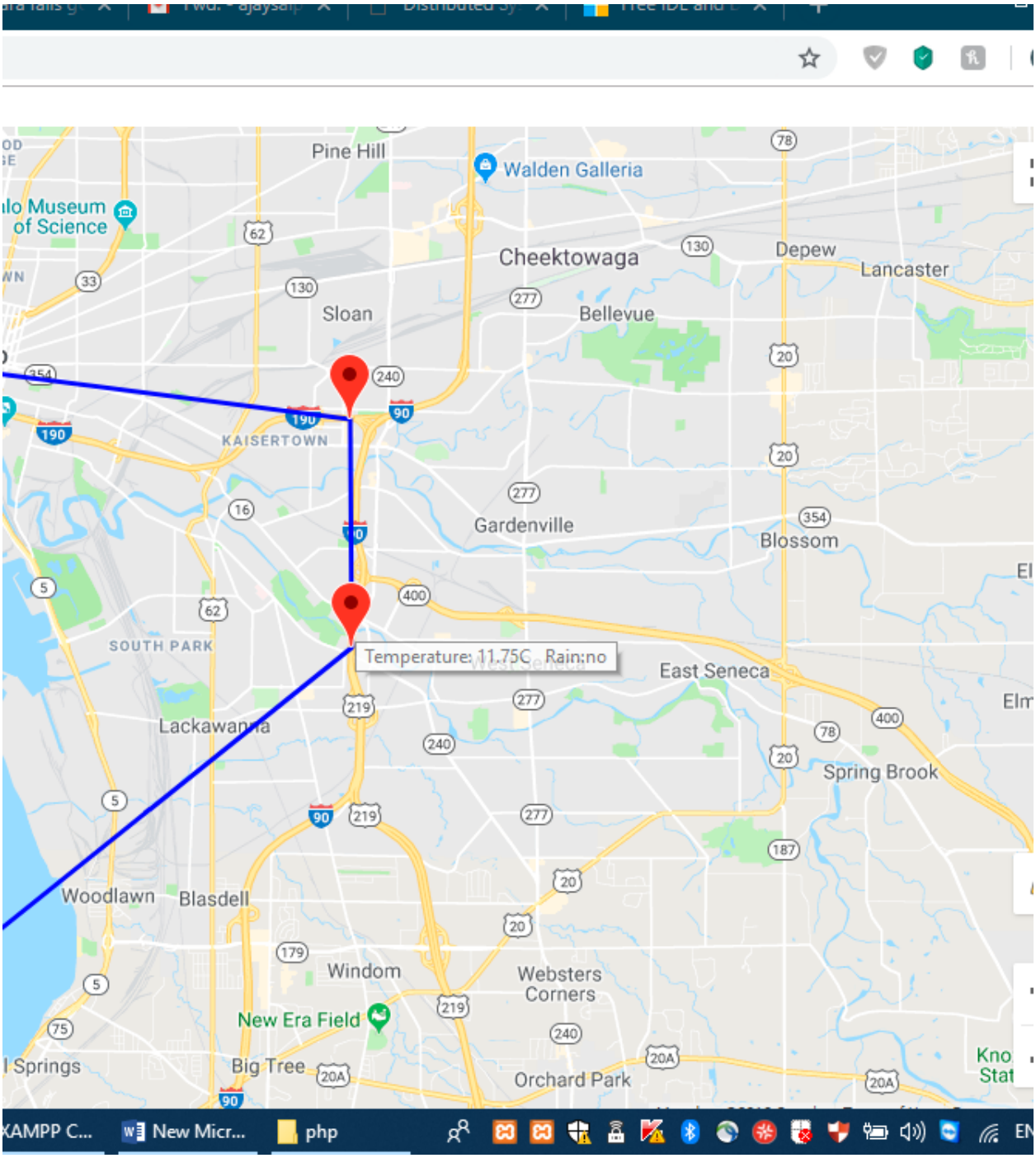


This page shows the results i.e. route from source to destination and marks the waypoints.

5.3. Weather Details

The weather Details are retrieved from the OpenWeatherMap API which gives various details such as temperature, humidity, windspeed, precpitation, etc. We have taken the Current Temperature and also the Precipitation mode.

In the below screenshot when we hover the mouse over the marker the temperature details at that marker are shown.


Pine Hill
Walden Galleria
Cheektowaga
Depew
Lancaster
Sloan
Bellevue
KAISERTOWN
Gardenville
Blossom
SOUTH PARK
Temperature: 11.75C Rain:no
East Seneca
Lackawanna
Spring Brook
Woodlawn
Blasdell
Windom
Websters Corners
New Era Field
Big Tree
Orchard Park
XAMPP C...
New Micr...
php

6. COMPARISIONS

Version1 uses API calls to retrieve the data and the time taken to call the API's are as below when calculated from Buffalo to Pittsburgh

C1- cost time for GoogleMapsAPI => 2.3 sec

C2- cost time for OpenWeatherMap API=>2.7 sec

C3-cost time for DB calls=>1 sec if data available

If data not available then C3=>5.3 sec

If data Available C1+C2>C3

If data not available C1+C2<C3

7. CONCLUSION

By Developing this app I had unterstood fundamental Distributed Systems Concepts such as

1. Explain the structure of a distributed system.

2. Integrate and render data from diverse sources using the APIs of services offered

3. Explore the components, core technologies, architecture and protocols that enable a

Services-based distributed system.

4. Implement a web application stack.