E-Patha - A Location based Hyperlocal Web Application using Django

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Abstract— **In times of need, there are insufficient resources to provide accurate information to individuals. Because most available information is not organized for easy access, someone looking for local information must search across multiple apps, which takes time. Individuals must be able to access information or services that are close to them, which requires a system that organizes information based on location. Because most information is not available on the internet, more effort needs to be done, particularly in rural areas. This paper describes how to create a Django-based location-based hyperlocal web application that allows anyone to obtain information about nearby shops, temples, tourist sites, weather, contact information for some of the area's important service providers, and government-related beneficiary data that can be useful in everyday life.**

Keywords— Django, hyperlocal, web application, Nodemcu.

I. INTRODUCTION

Obtaining precise information about a location, person, or item in today's society is extremely challenging. People usually look for additional information about their surroundings, such as transport modes, a grocery, or other information that is useful in everyday life. It may be at bus stations, where people frequently seek information about bus schedules and when the next bus would arrive. It could be requesting directions or product availability in surrounding stores. Online taxi/cab bookings are not available in several villages. It is not possible to save every taxi driver contact information in this circumstance. The main problem that peoples experience is a lack of accurate local information. Governments have spent large sums of money to improve rural conditions throughout the years without having a significant impact. A medium is needed to provide people with this kind of information about their locality. People gradually understanding technology such as smartphones, computers and internet, and the information source in the form of web application will be best suited in this case. A virtual platform to access and also give or contribute a part of their knowledge for the benefit of others.

II. METHODOLOGY

A. Technologies used

1) Front-end technologies:

a) HTML - Hyper Text Markup Language is the foundation of any website and is the basic knowledge possessed by an individual who wants to be a web developer. It is used for proper formatting of text and images for browser.

b) CSS - Cascading Style Sheets are widely used to give required look to a website. It is overlaid on HTML. Different style features can be added to the website with the help of CSS tools.

c) JavaScript - JS is a programming language used in a website to give it a dynamism. To make a website interactive or to manipulate the data JS is used.

2) Back-end technologies:

a) Python - Python is a flexible programming language that provide lot of advantages compared to other programming language. It supports Object Oriented Programming concepts. In current trend it is used in Web Development and Machine Learning applications.

b) Django - An open-source framework useful for web development. It is used to reduce and reuse the codes so that overall development time will be reduced. It also provides default database service that can be helpful in the backend process.

B. Proposed Work

The web application gives detailed information about the location, including surrounding temples, tourist sites, contact information for auto/cab drivers, and information about local stores. Users can post information about a temple, a tourist site, or their local company after logging in. The website's map allows users to go to various nearby sites and obtain route and distance information.

The Temple's location and tourist attractions, as well as transit choices and guest reviews, are all included in the Web application. The user can view photographs linked to the location in the gallery area. Users can search for available services or product availability in local stores using the web application's local shop feature, and store owners and customers can update product availability on a regular basis. so that the shop appears when a customer searches for products using keywords that match. Customers and store owners gain from this since they may get the things they need quickly.

Contact information for numerous service providers such as mechanics, plumbers, automobile or cab drivers can be found on the website. so that anyone providing a service can post their information to attract more customers, and people looking for services can locate their contact information on the website. The website's content is in the control of the admin, who can modify or delete unwanted information.
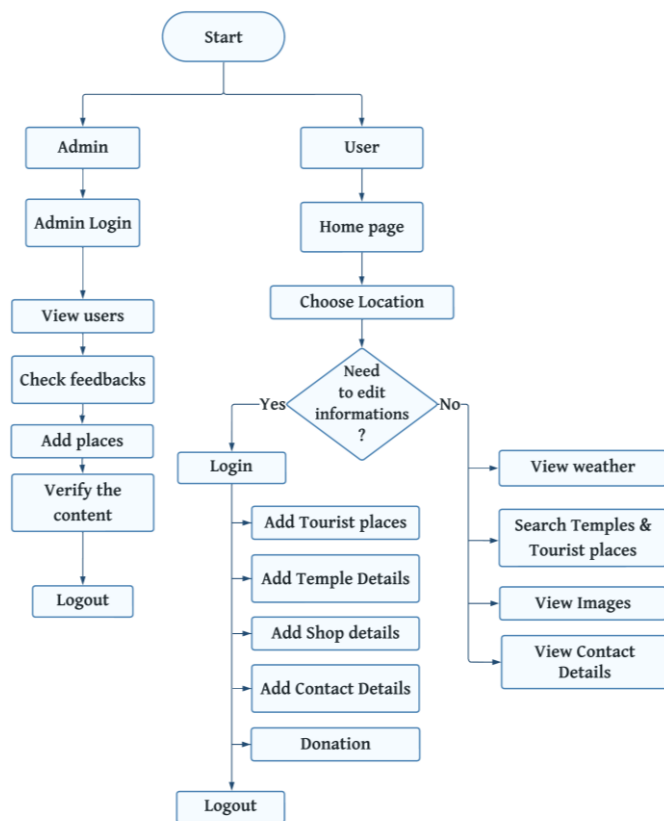

Fig. 1. Website Navigation Flow chart

user's latitude and longitude position, as well as sensor data, using a single API call.
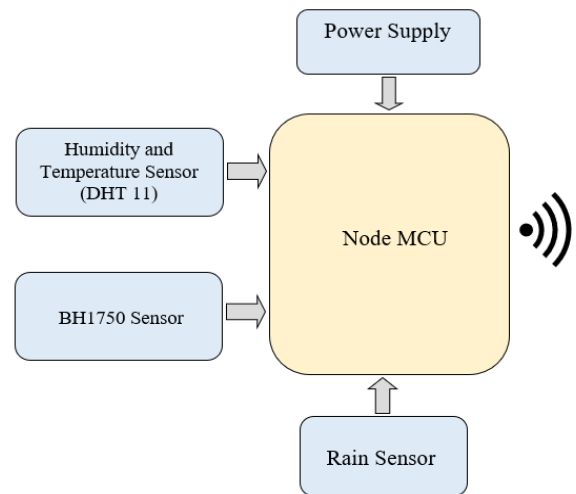

Fig. 2. Weather monitoring system

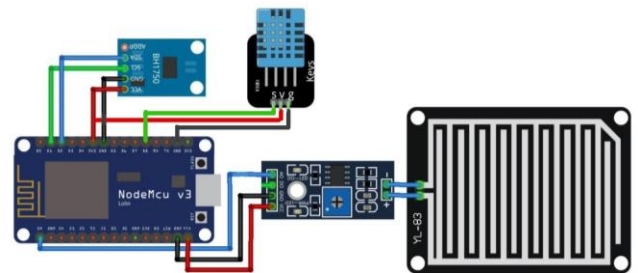Fig. 3. Weather monitoring system circuit connections
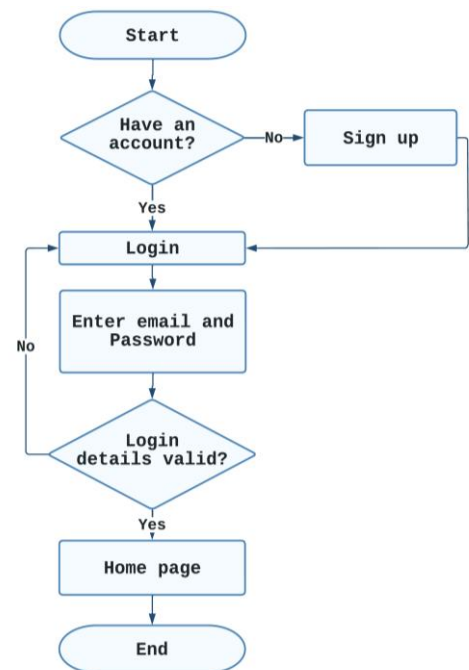
D. User Authentication With Oauth

Fig. 4. Login Process Flow chart

C. Weather system Architecture

Temperature and humidity sensors, rain sensors, and the BH1750 Light intensity Sensor are all used to obtain reliable meteorological data for any given location. Weather details and sensor data are plotted on websites with weather data from the OpenWeatherMap API.

The Node MCU is programmed using the Arduino IDE software. The ThingSpeak cloud receives data from all of the sensors. ThingSpeak cloud provides a complete graph of sensor values. As a result, the cloud data is combined with data from the OpenWeatherMap API to create a webpage. A seven-day weather forecast is provided on the webpage based on the

OAuth is a protocol that authorizes the user, which relies on third-party auth provider such as google. It grants access to the user after authorization of their accounts in the server. Users

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can login through their google account or can sign up after filling a form. Only logged in people can modify or add additional content to the webpage.

D. Bus Timing Assistant System Architecture

The Bus Assistant system's primary job is to retrieve bus schedules from a database and notify users. This assistance device will be placed in the bus station and will respond to questions when a push button is pressed. The information is communicated through the speaker which is connected to the main controller Raspberry Pi.
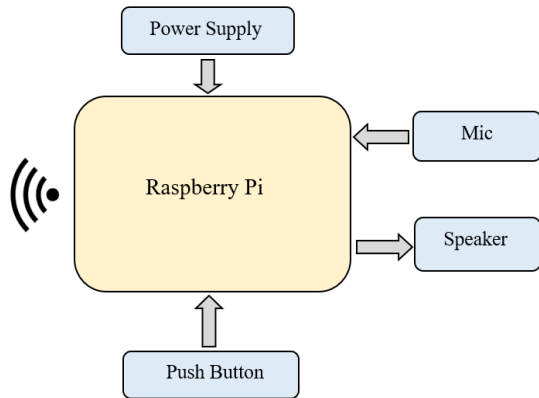
Fig. 5. Bus Timing Assistant System

III. RESULTS OF PROPOSED WORK

The Figure 5 shows the home page with different sections to navigate. User can view the content without logged in to the site.
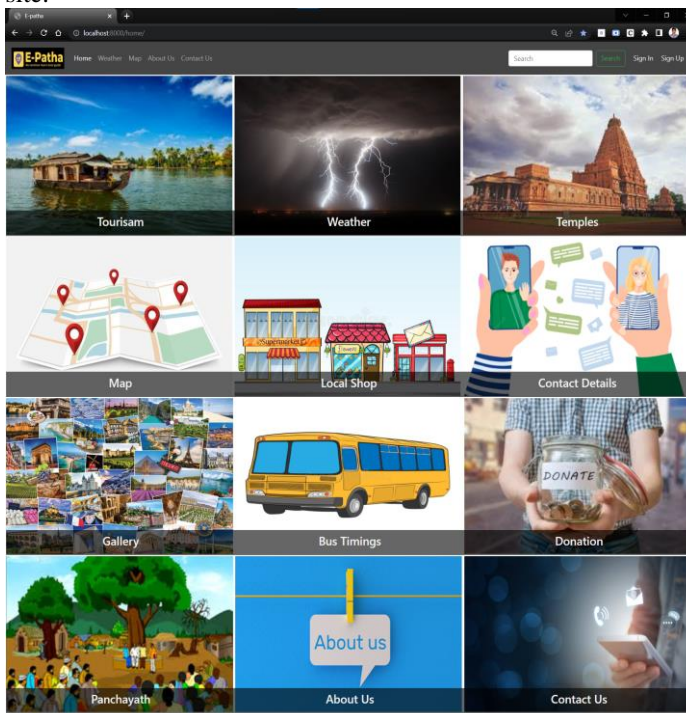
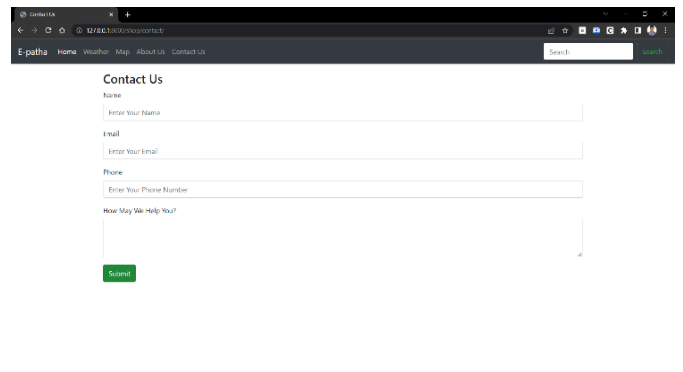Fig. 6. Home Page

Fig. 7. Weather page
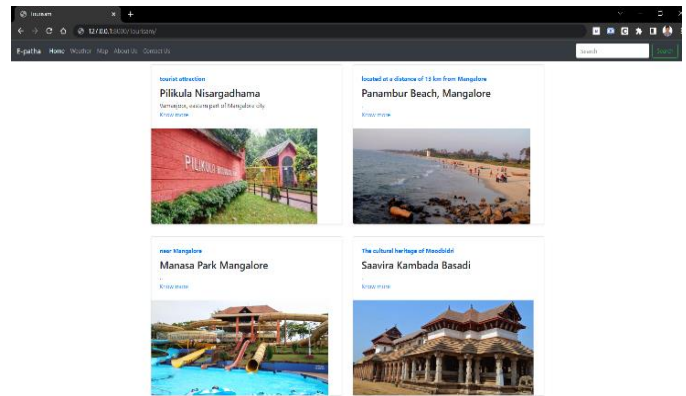
Fig. 8. Contact us page

Fig. 9. Tourism page

Fig. 10. Sign in/Sign up through OAuth

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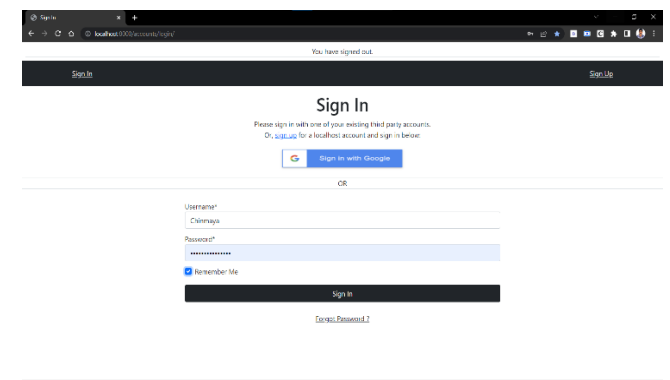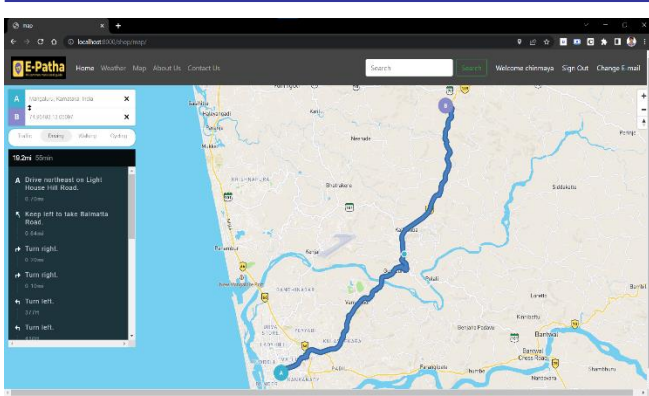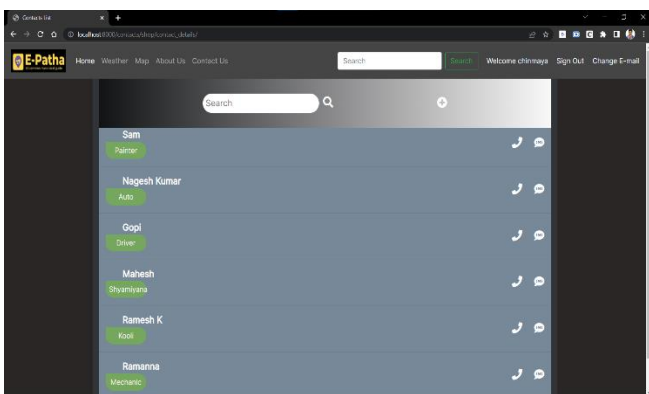
Fig. 11. Map in the webpage

Fig. 12. Contact Details section in webpage

The Contact Details page, shown in Figure 12, allows logged-in users to add their contact information if they provide any services. Users will receive contact information based on the location they choose.
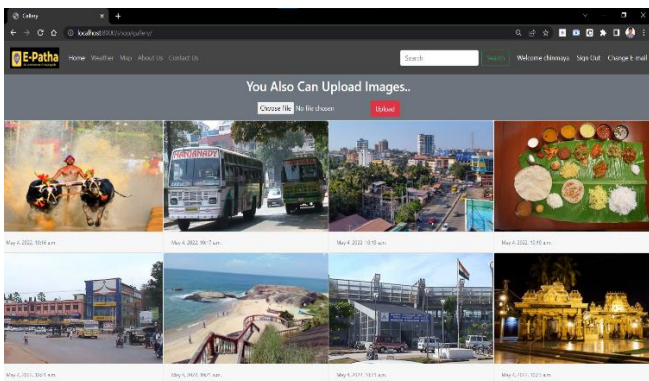

Fig. 13. Gallery section in webpage

Figure 13 Shows a Gallery section to showcase images related to the village festivals, tourist places mainly to attract the tourists. Web application users can add images related to festivals, popular places, and temples can be added in the gallery section.

IV. CONCLUSIONS

The project developed can be considered satisfactory after reviewing the data obtained. It can be stated that the website will be quite beneficial to those seeking local information. This project has a lot of room for improvement. More functionality, such as sharing local news, announcements, and advertisements, could be added to the project.

V. FUTURE SCOPE

More Features such as getting a notification regarding the Weather, Announcement from the panchayath can be added. Feedback from the user can be taken to improve the functionality or quality of information.

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