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To-Do List Using Map APIs

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Abstract To-Do List by the name indicated smartly makes it way in analyzing user's likes and dislikes and the time period the user is willing to explore a place and gives him with Amazing results in the form where utilization of time is maximum. This system is basically used to help a traveller new to a city or anyone who wants to explore a city in the given time period, the system makes use of the preferences of the user to get all the locations and places with all their information to sort and give a plan to the user. This project has four modules from signing in to the final map view display. This application will be helpful for the user to schedule a trip to a couple of places in the minimum distance within the time period provided as per user's requirement. The final output is a map view with the connected path of smaller route to reach the multiple places as per user's interest. Thus we have used Wamp Server for combining PHP, MySQL, FourSquare API and Tom Tom Maps API to create this application.

1. Introduction

1.1 About Project

To-Do List is a web application to create a schedule for a traveller travelling to a city to explore it by specifying interests and types of places want to visit. Our system then smartly analyses the questionnaire and creates a schedule for traveller based on provided time and gives a shortest route to reach all places from one to another.

By the name it itself indicates the way in analysing user's likes and dislikes and is basically used to help a traveller new to the city or anyone who wants to explore a city in the given time period and their interests, the system first fetches user's current location using GPS and then makes use of the Foursquare API to get all the locations and places with all their information to sort and place it before the user to make his choice. The places are sorted and selected based on the top rankings by the foursquare and a shortest route is displayed to the user to save their time.

1.2 Objectives of the Project

The aim of the developed To-Do List using maps API is to enhance the tourists travel experience. The main objective is to provide them an intelligent platform that manages efficient allocation of tourism resources and destinations. The project focuses on the tourists visiting a destination for the first time or on the tourists who are unsure of the location of visit.

1.3 Scope of the Project

This system can be used by any company or institution related to tourism which may help their clients or agents. It has an advantage over a Paper Based Map. This will also help a user to schedule their places to visit. Choose the best route to reach the destination in minimum time. It can help the user who is new to the city. It also helps in quicker decision making with respect to places to visit.

2. Literature Survey

2.1 Existing System

In the existing system, it is necessary for user to input the name of the destination exactly. If sightseeing place is decided users do not have any problem (Google Maps). But, if the user wants to explore new places which he is not aware of then this system is not desirable. Current system shows only the top locations around the user. But, the user has to choose the places he wants to visit and search routes for each place separately. Furthermore, Google map displays it only to the route of the destination. On the other hand, in this system, the point that can propose a sightseeing route and sightseeing plan in the planned time to return is big superiority. In the existing tourist guide system, user is necessary to input an individual visit. Therefore, it is necessary for the traveller to prepare for sightseeing spot beforehand. Traveller can only visit the places which he is aware of. If it is a famous sightseeing spot, traveller can easily check it on a book or Internet. However, if it is not a famous sightseeing spot, but there are a lot of attractive places the traveller will not be aware of it.

2.2 Proposed System

The solutions for above mentioned problems can be achieved by developing a smart city traveler web application which is beneficial for user in travel planning, decision making. A user will select a location and has to answer a predefined set of questions. On the basis of answers a machine learning algorithms will automatically make a travel plan and will also notify the recent updates about the place. The machine learning algorithms will predict the outcome on the basis of input data. Although when the user reaches the destination he/she will have to submit feedback which will be useful for new user or the same person going to different place. The web application will be free of cost and will be very simple to use. The maintenance is very easy and it requires only updating location details. Thus this application will save the enormous time of user and he/she will be able to make enjoying destination planning.

3. Proposed Architecture

The user needs to register with the application. These details will be stored in the database using Wamp Server. After the Registration, the user is asked some questions helping the system to filter out in searching the places, the places are displayed on a map giving a clear idea of the location and giving the paths from one place to another from the start location to the end location. The system also asks the user whether he/she wants to visit an adventure or water park or a temple or want to have coffee and will show the options based on the rankings and reviews about the place. Since the Traveler may be new to the city not knowing any place, in the map view if the user clicks on the marker, he/she can see the ratings and reviews which are recorded from the Foursquare itself. The System requires a working internet connection all the time for the application to work.

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3.1 Architecture

The following is the architecture of this project.

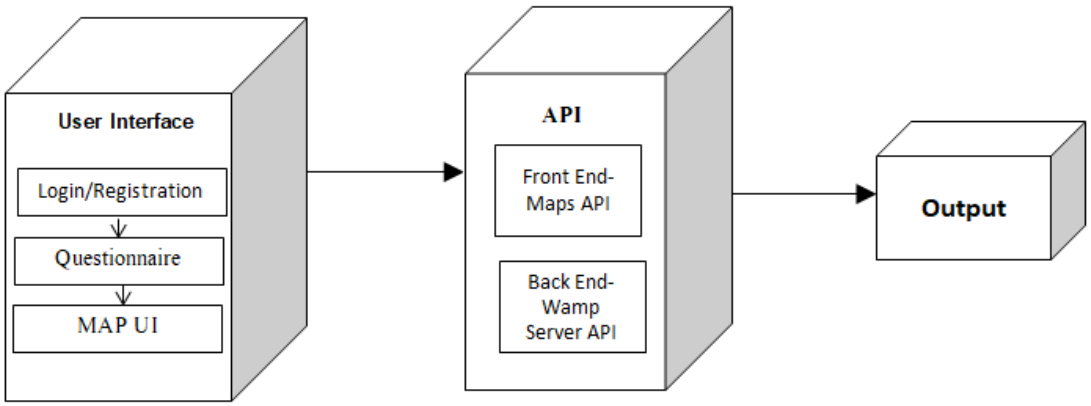

Fig3.1: Architecture

3.2 System Environment

Wamp Server:

WampServer refers to a solution stack for the Microsoft Windows operating system, created by Romain Bourdon and consisting of the Apache web server, OpenSSL for SSL support, MySQL database and PHP programming language. It eliminates the developer's time spent in the cumbersome configuration environment process and freeing up more energy for development.

Foursquare API:

The Foursquare Places API provides location-based experiences with diverse information about venues, users, photos, and check-ins. The API supports real time access to places, Snap-to-Place that assigns users to specific locations, and Geotag. Additionally, Foursquare allows developers to build audience segments for analysis and measurement. JSON is the preferred response format.

Google Map APIs:

Google Map's API is a robust tool that can be used to create a custom map, a searchable map, check-in functions, display live data synching with location, plan routes, or create a mashup just to name a few. Google Map's APIs are very powerful, but what is even more powerful is the mashup of more than one API. This is actually very cool, and probably the best discovery I have found for what initially began as a mini-project. Now, I am thinking of utilizing Google Map's API for an app that no one else has thought of. For example, one cool mashup idea a programmer came up with blends Google Maps and Craigslist computer gig listings.

The following are few Google Map APIs:

Directions API: The Directions API is a service that calculates directions between locations using an HTTP request. With the Directions API, you can:

• Search for directions for several modes of transportation, including transit, driving, walking or cycling.

• Return multi-part directions using a series of waypoints.

• Specify origins, destinations, and waypoints as text strings (e.g. "Chicago, IL" or "Darwin, NT, Australia"), or as latitude/longitude coordinates, or as place IDs.

Places API: The Places API is a service that returns information about places using HTTP requests. Places are defined within this API as establishments, geographic locations, or prominent points of interest. The following place requests are available:

- Place Search returns a list of places based on a user's location or search string.

-Place Details returns more detailed information about a specific place, including user reviews.

-Place Photos provides access to the millions of place-related photos stored in Google's Place database.

-Place Autocomplete automatically fills in the name and/or address of a place as users' type.

-Query Autocomplete provides a query prediction service for text-based geographic searches, returning suggested queries as users type.

Geometry Library: The Maps JavaScript API geometry library provides utility functions for the computation of geometric data on the surface of the Earth. The library includes three namespaces:

• spherical contains spherical geometry utilities allowing you to compute angles, distances and areas from latitudes and longitudes.

• encoding contains utilities for encoding and decoding polyline paths according to the Encoded Polyline Algorithm.

• poly contains utility functions for computations involving polygons and polylines.

The google.maps.geometry library does not contain any classes; instead, the library contains static methods on the above namespaces.

Spherical Geometry Concepts: The images within the Maps JavaScript API are two-dimensional and "flat." The Earth, however, is three-dimensional, and is often approximated as either an oblate spheroid or more simply as a sphere. Within the Maps API we use a sphere, and to represent the Earth on a two-dimensional flat surface — such as your computer screen — the Maps API uses a projection.

Utilities to calculate these spherical geometric constructs are contained within the Maps API's google.maps.geometry.spherical namespace.

TomTom APIs:

Designed for developers, TomTom's location technologies power a complete range of products – from web and mobile applications to a complete in-dash navigation experience all the way to fully autonomous driving solutions.

The following are the TomTom APIs

Map Display API: The Map Display API is a suite of web services designed for developers to create web and mobile applications around mapping. These web services can be used via RESTful APIs. The offering includes: Raster: Raster provides map images of the TomTom high-quality world map in raster graphics formats.

Routing API: Routing is a suite of web services designed for developers to use our latest scalable online Routing engine. Independent tests have established that the TomTom Routing engine is the best in the industry. Our Routing engine uses IQ Routes and TomTom Traffic.

PHP:

PHP (recursive acronym for PHP: Hypertext Pre-processor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.The best part about using PHP is that it is extremely simple for a newcomer, but offers many advanced features for a professional programmer.

MySQL:

MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing the records in the database. MySQL is open-source and free software under the GNU license. It is supported by Oracle Company. MySQL is currently the most popular database management system software used for managing the relational database. It is commonly used in conjunction with PHP scripts for creating powerful and dynamic server-side or web-based enterprise applications.

HTML and CSS:

HTML stands for Hypertext Mark-up Language. It allows the user to create and structure sections, paragraphs, headings, links, and block quotes for web pages and applications. HTML is not a programming language, meaning it doesn't have the ability to create dynamic functionality. Instead, it makes it possible to organize

and format documents, similarly to Microsoft Word. Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

JavaScript:

JavaScript is a scripting or programming language that allows you to implement complex features on web pages — every time a web page does more than just sit there and display static information for you to look at — displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. you can bet that JavaScript is probably involved.

4. Implementation

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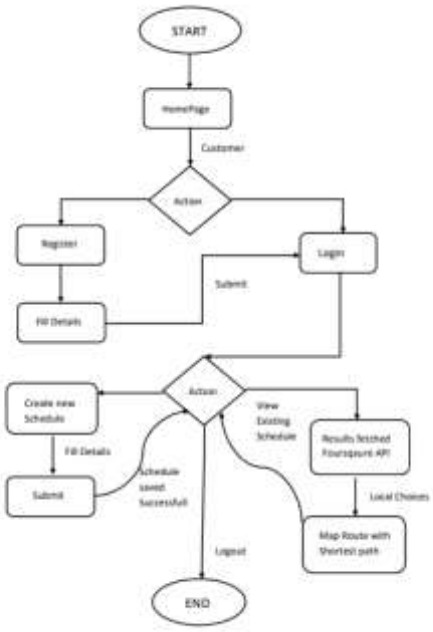

Fig 1: Flow Chart

4.1 Algorithm

Insertion Sort: Insertion sort works similar to the sorting of playing cards in hands. It is assumed that the first card is already sorted in the card game, and then we select an unsorted card. If the selected unsorted card is greater than the first card, it will be placed at the right side; otherwise, it will be placed at the left side. Similarly, all unsorted cards are taken and put in their exact place. The same approach is applied in insertion sort. The idea behind the insertion sort is that first take one element, iterate it through the sorted array. Although it is simple to use, it is not appropriate for large data sets as the time complexity of insertion sort in the average case and worst case is $O(n^2)$, where n is the number of items. Insertion sort is less efficient than the other sorting algorithms like heap sort, quick sort, merge sort, etc.

Steps on how it works:

If it is the first element, it is already sorted.

Pick the next element.

Compare with all the elements in sorted sub-list.

Shift all the the elements in sorted sub-list that is greater than the value to be sorted.

Insert the value.

Repeat until list is sorted.

5. Result

Here user is required to enter basic information like name, gender, date of birth, etc. Once user creates an account, they will be redirected to login page and enter the email and password to login.

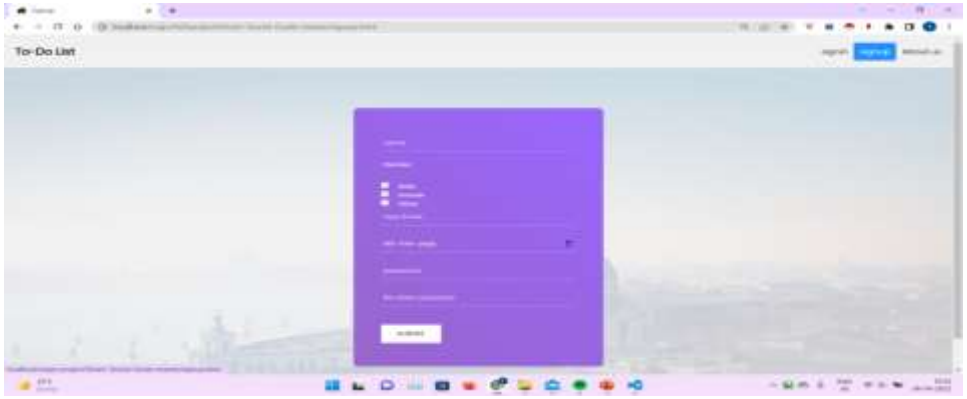

Fig 2: Sign up page

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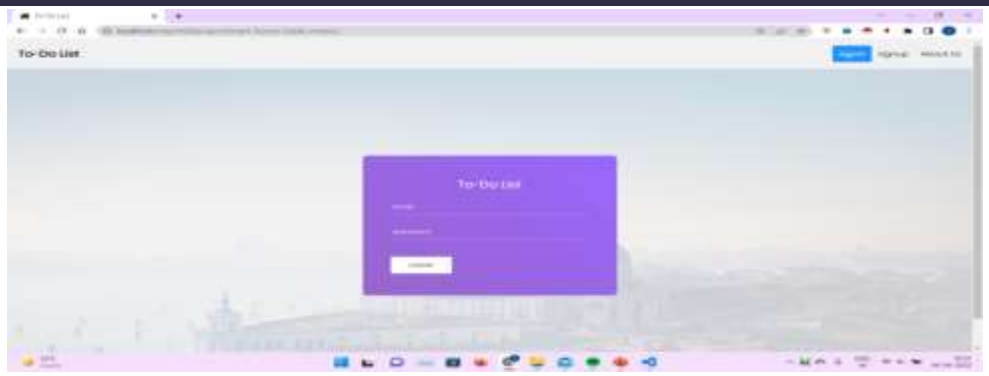

Fig 3: Login Page

Dashboard where you can create, view or erase schedules. To create a schedule, user will be asked some questions to know user's interest for further processing. The keywords available in the form are standard keywords accepted by foursquare api, e.g. Restaurant, Temple, Shopping etc.

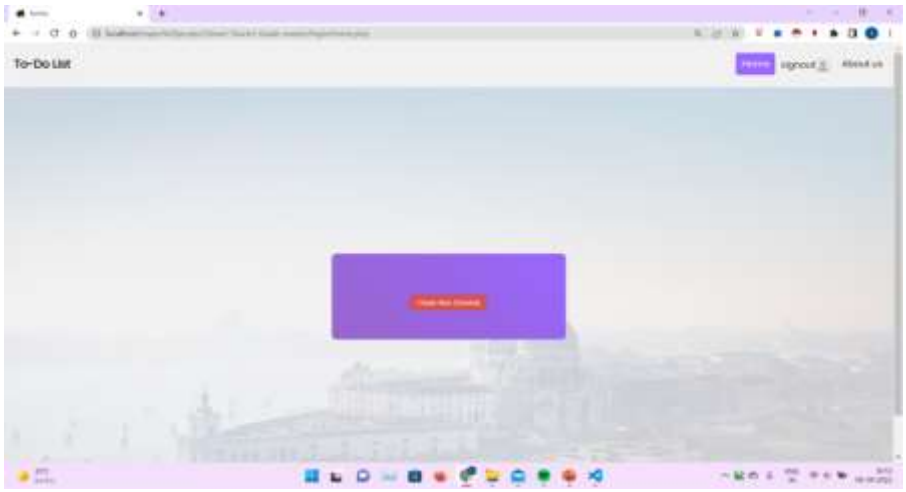

Fig 4: Create Schedule Page

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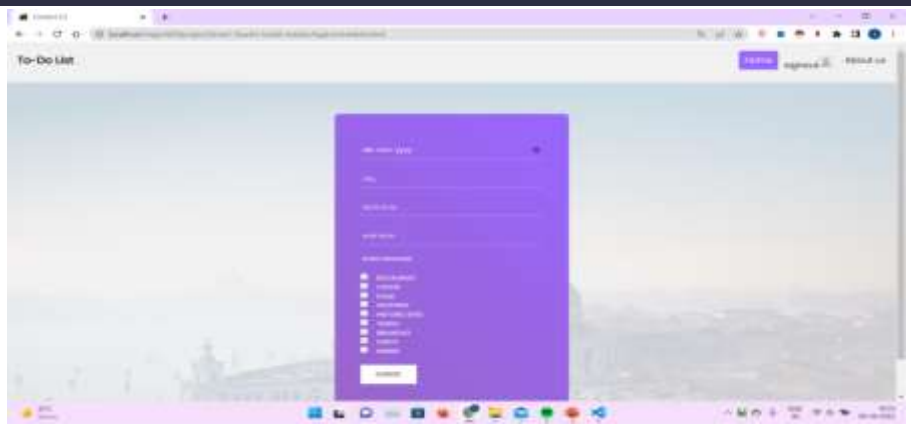

Fig 5: Schedule Creation

The schedule as per the user's interest is created and all results are displayed after fetching all nearby locations from user's interests and suggest users to check out the places based on the ratings.

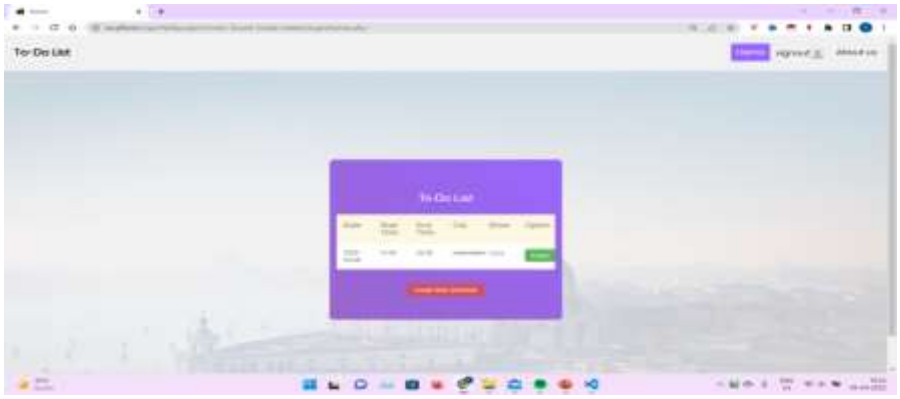

Fig 6: Schedule Dashboard

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Fig 7: Results of Places Nearby with ratings

This final map view showing all the recommended places the user has selected to visit, with markers on the map.

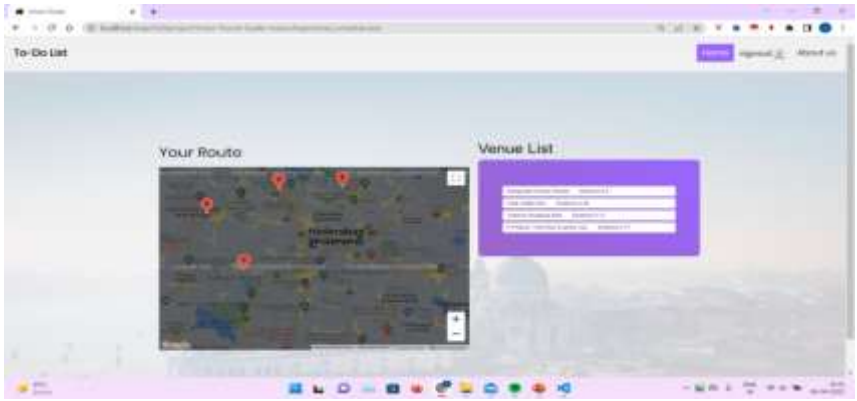

Fig 8: Result Page with Venue List and Map

On Clicking the Your Route option, we get a map with points between them showing the optimized route saving user's cost and time.

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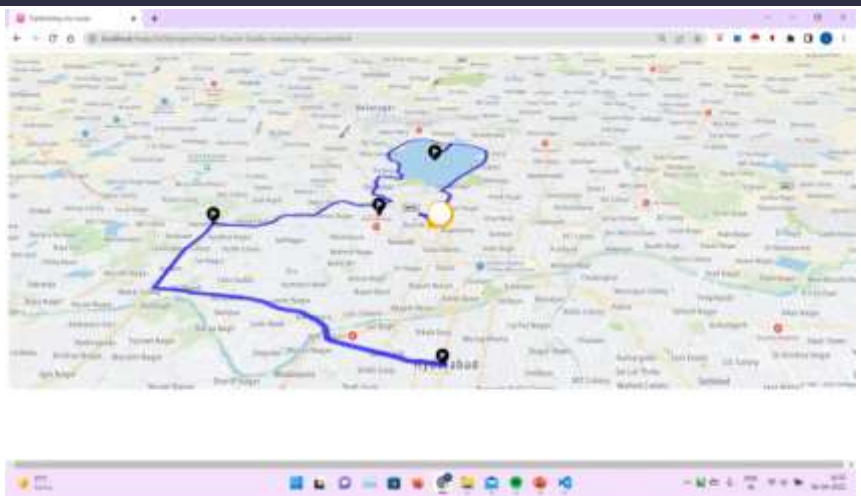

Fig 9: Final Map view with optimized route

6. Conclusion

In this project, we propose the design and implementation of a web application called To-Do List, with which users can get tourism guidance information they need anytime and anywhere. By this interface application users can get an attraction's detailed information of the schedule them made with the shortest path to reach all the places. User can search the near attractions after he or she configures the distance between the current location and the view spots. The To-Do List project aims for the user gratification in searching about the cities and providing more flexibility to the user. Since travelling is one of the important aspects today, it is very necessary that proper planning need to be done beforehand in terms of time management. Most people without using the latest technology waste a lot of time just planning trips. So, an application like To-Do List really helps tourists to utilize their precious time to the fullest and also enjoy their trip at the same time.

7. Future Scope

This system can be used by any company or institution related to tourism which may help their clients or agents to help the users in gaining an advantage over a Paper Based Map. This will also help a user to schedule their places to visit and will choose the best route so that user can visit all the places in minimum required time. This system will also help any user who is new to the city does not want a guide to give tour to the city.

8. References

https://developer.foursquare.com/

https://developer.foursquare.com/docs/api/venues/explore

https://enterprise.foursquare.com/products/places

https://developers.google.com/places/web-service/intro

https://developers.google.com/maps/documentation/directions/start

https://developers.google.com/maps/documentation/javascript/geometry

https://developer.tomtom.com/routing-api/documentation/product-information/introduction

https://developer.tomtom.com/traffic-api/documentation/product-information/introduction

Anisha P R , Kishor Kumar Reddy C and Nguyen Gia Nhu, "Blockchain Technology: A Boon at the Pandemic Times – A Solution for Global Economy Upliftment with AI and IoT", EAI/Springer Innovations in Communication and Computing, 2022.

PR Anisha, CKK Reddy, NG Nhu, Blockchain Technology: A Boon at the Pandemic Times–A Solution for Global Economy Upliftment with AI and IoT, Blockchain Security in Cloud Computing, 227-252, 2022

PR Anisha, Kishor Kumar Reddy C, NG Nguyen, G Sreelatha, A Text Mining using Web Scraping for Meaningful Insights, Journal of Physics: Conference Series 2089 (1), 012048, 2021

CKK Reddy, PR Anisha, RM Mohana, Assessing Wear Out of Tyre using Opencv & Convolutional Neural Networks, Journal of Physics: Conference Series 2089 (1), 012001, 2021

T Lingala, CKK Reddy, BVR Murthy, R Shastry, Y Pragathi, L-Diversity for Data Analysis: Data Swapping with Customized Clustering, Journal of Physics: Conference Series 2089 (1), 012050, 2021

SN Paidimarry, CKK Reddy, LG Lolla, Internet of things enabled smart baggage follower with theft prevention, Journal of Physics: Conference Series 1950 (1), 012002, 2021

PR Anisha, CKK Reddy, K Apoorva, CM Mangipudi, Early Diagnosis of Breast Cancer Prediction using Random Forest Classifier, IOP Conference Series: Materials Science and Engineering 1116 (1), 012187, 2021

RM Mohana, CKK Reddy, PR Anisha, BVR Murthy, Random forest algorithms for the classification of tree-based ensemble, Materials Today: Proceedings, 2021

Kishor Kumar Reddy C, Anisha P R, Shastry R, Ramana Murthy B V, "Comparative Study on Internet of Things: Enablers and Constraints", Advances in Intelligent Systems and Computing, 2021

Kishor Kumar Reddy C, Anisha P R, Apoorva K, "Early Prediction of Pneumonia using Convolutional Neural Network and X-Ray Images", Smart Innovation, Systems and Technologies, 2021

R Madana Mohana, Kishor Kumar Reddy C and Anisha P R, "A Study and Early Identification of Leaf Diseases in Plants using Convolutional Neural Network", Springer 4th Int Conference on Smart Computing and Informatics, 2020, India

Anisha P R, C Kishor Kumar Reddy and Nuzhat Yasmeen, "Predicting the Energy Output of Wind Turbine Based on Weather Condition", Springer 4th Int Conference on Smart Computing and Informatics, 2020, India