**NAVIGATIONAL ASSISTANCE FOR STUDENTS IN MAIN CAMPUS KADUNA POLYTECHNIC**

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**1.1 BACKGROUND OF THE STUDY**

The mobile has become a valuable part in recent years for the human beings. It has become necessary for humans to have a powerful device that will provide numerous facilities other than the simple facilities available on mobile phones.

A Geographic Information System (GIS) is a computer-based information system for storing, managing and analyzing, and invoking geographic reference data that has developed rapidly in the last five years (Wibowo, 2018), GIS is a computer system that captures, stores, validates and displays data about locations on the Earth's surface. GIS can display a wide range of data on a single map, including streets, buildings, and plants. This allows people to identify, evaluate, and comprehend patterns and correlations more quickly. which the aim of this project is to aid in simplifying the process of finding a location on campus through media mapping. This place finder application is expected to help and facilitate locating a place.

Android devices have become the first preference for many users and the demand for social applications is growing immensely. This research is a navigational assistance application which is for the main campus of Kaduna polytechnic. Android is used as a basis for this information system because Android has been known as one of the open-source systems where developers are free to develop various applications according to their own wishes. In addition, the reason why this geographic information system is built on android is to prioritize aspects of the high level of mobility that each android application has (Habibi, 2018).

A higher institution such as Kaduna polytechnic has a lot of infrastructure inside the school, with different names and usage. As a new student in a new space, navigating to a different location on campus is quite challenging, asking other people around the area might seem helpful but not as accurate as when a geographic information system such as google map API is employed in achieving the task.

Since GPS is suitable for navigating outdoors, Users just have to choose or search for their desired destination from the interactive user interface and a route will be presented to them.

**1.2 STATEMENT OF THE PROBLEM**

As a new student in a new environment without a clear navigation plan is frustrating, not knowing where to go, or having the phobia of asking questions, even on asking a question most people would rather make jest of you by pointing you to the wrong direction all in the name of “in the past similar thing was done to me” thereby wasting one's valuable time, Hence the need for this application. By using these applications, we can guide the new student or any student with difficulty in finding a location easily, therefore reducing the cost of parsing information and providing a platform that can be accessed anytime and from anywhere.

**1.3 AIM AND OBJECTIVES**

The project is aimed at designing a working mobile-based application in Kaduna polytechnic main campus that will be used mainly by both newly admitted students and also returning students to help them locate places on campus.

**OBJECTIVES**

The objectives of this research work are as follows:

* To design an android application that will guide students to their destinations on campus.
* Google map API will be employed in the retrieval of location-related data.
* In the front-end development Flutter will be employed to create an interactive UI and UX as well as Django which is a Python web framework will be employed in developing the back-end coupled with Django Rest Framework for the REST-Full APIs.
* Series of vital testing will be carried out in ensuring the efficacy of the research work.
* In storing and retrieving location data; MySQL, an open-source relational database, will be used as the database technology.
* To implement and eliminate time wastage in locating a place.
* To evaluate how efficiently the system manages location records on campus
* Efficiently manage location records on campus.

**2.1 LITERATURE REVIEW**

**In Campus Location Finder Using Mobile Application Services**

The university campus consists many buildings and rooms with many differences in term of name and usage. Besides that, to move from one building to another building will take some time because campus was not small like a primary school or a secondary school. An ordinary map does not seem to be helpful since it does not indicate user location. It may take time to known the user’s current place. Searching destination inside a building is challenging as the hallways inside a building are almost similar. Ask other people around the area may get the direction but it will be very tricky when the way to the destination consist many turnings point. Another challenge was need to remember all the directory correctly (J. Joseph, 2014). From a campus map, it just indicates the name of building in campus. It does not have the detail lecture room, laboratory, etc. to make the new comer more convenience to find the destination. The application will use the build in GPS on the mobile phone to track the user current location in the UHTM. Application also contain search list for user to search the destination they want to go. Since the GPS is not suitable to navigate at indoor, another method and some tools are needed for the indoor navigation. The QR code will be placed in front of the door of each room so user can notice clearly and scan it to know their position inside the building. User needs to choose the desired room destination that already set in the data base. Indoor navigation will start from the place QR code been scan to user desire destination. In this project, a mobile application has been developed. The aim of the application is to navigate user to the destination on outdoor and indoor. For case study purpose, the system was customized to the application in UTHM, mainly for the students and visitors.

**On-Road Car Breakdown Assistant Finder**

The development of the On-Road Car Breakdown Assistant Finder system, the proposed platform of this system, a web application has been recommending for the system. The web application was suitable in this project because it required no installation, reduce business cost, quick and easy updates, low spec pc or smartphone, and others. Moreover, the system also uses a Global Positioning System as known as GPS (L. Awange, 2012) .It was built to locate the users to find the nearest mechanic or workshop toward them with the enhancement of GPS positioning information. Not just that, the system also needs a nearby mechanic finder.

**Location Finder Mobile Application Using Android and Google SpreadSheets**

Wei Chuan, L., Kasim, S., Choon Sen, S., Hassan, R., & Mohd. Ali, N. (2017 recently performed a study on Batu Pahat Auto Workshops Finder, which is developed and designed to assist drivers and passengers in searching for and contacting Batu Pahat car workshops. When traveling to a new location, drivers are often faced with the difficulty of locating auto workshops. They are unsure of the location of the nearest vehicle workshop or how to contact it. As a result, the car's problem cannot be handled in the shortest possible time. When the car breaks down, the user may use this application to find the nearest auto workshops in Batu Pahat from their present position. Furthermore, when the user clicks on the vehicle workshop, the contact number will be given in detail, allowing the user to obtain the contact number of the car workshop and request assistance. Android Studio is the software program used to create Batu Pahat Car Workshops Finder. Java is the programming language employed, while Firebase serves as the database.

**3.1 PROPOSAL METHODOLOGY**

This kind of in-depth examination is part of the research strategy, which aims to learn new facts or details about the current system. The department and the internet were used as primary sources of data for this investigation.

**3.1.1 INTERVIEW**

The main objective of using interviews as a method of data collection is to obtain information in a thorough and rigorous way. Based on the questions the researcher provided, the researcher met with the departmental project coordinators and acquired reliable information.

**3.1.2 DIRECT OBSERVATION**

This method allows varied degrees of control over the context in which they are used, and the meticulous inspection highlighted the obvious shortcomings in the current system. It was utilized to gather information/data for this study by looking at how student locate places manually.

**3.1.3 INTERNET**

In order to get a useful result, the internet will be used as a technique of data collecting. Information on areas that seem challenging or confusing will be sourced online.

A careful study like this to discover new facts or information is known as the research methodology. As a secondary source of data, the research work will include direct observation of the school, the internet, and textbooks. These methods provide reliable information and required knowledge for this research and proper guidance;

**3.2 CHOICE OF PROGRAMMING LANGUAGE**

This research work will be a mobile-based application where flutter will be employed in designing the front-end; SQLite will be used as the database, Django will be used as the backend, Django REST Framework as the web API, Google Maps API is used to interpret the set-out coordinates. The combination of the above will help build a very robust platform that will be useful, fast, and handy.

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