ISPSC MAP ME: AN ANDROID APPLICATION

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A CAPSTONE PROJECT PRESENTED TO THE FACULTY OF
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INTRODUCTION

Project context

Mobile devices have become a vital communication tool which everyone prefers to possess and carry along. This technology has laid a foundation to overcome the traditional desktop-based approach of obtaining information. The GPS, elaborated Global Positioning System, is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense in 1973. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilians. GPS works in any weather conditions, anywhere in the world, 24 hours a day. There are no subscription fees or setup charges to use GPS. GPS was invented by the U.S. Department of Defense (D.O.D) and Ivan Getting, at the cost of twelve billion taxpayer dollars.

The ISPSC MAP ME is a Smartphone system of ISPSC Sta. Maria, predominantly designed for navigation. ISPSC Map Me is useful for student Most especially for freshman or visitors. ISPSC Map Me uses satellites as reference points to calculate geographical positions of ISPSC, accurate to a matter of meters. In fact, with advanced forms of ISPSC Map Me, you can see the buildings and directions you want. This mapping device comes in handy under a variety

of circumstances. ISPSC MAP ME can help us to determine exactly where we are at any given moment. *(Gerard van schagen 1689)*

Problem

Due to the changes and new built buildings and infrastructures in the school premises, and outdated manual directory of the campus, it is a burden and time consuming for the ISPSC old and new students, administration, employees and visitors to find and reach their destination inside the school premises which cause much delay. After a year, new buildings and infrastructures were built. It's good that there are already new trends of technology which can help people make their work times three of faster and convenient, therefore the ISPSC MAP ME needs to be develop.

Purpose and description

School administrator and Employees The study would give the school, specifically the administrators, an idea on how to make visible areas in the campus be recognizable specifically to visitors who are new in the campus.

Students The output of this study will ultimately benefit them; it will give them a direction to find the buildings and rooms. Upon reading the said study ISPSC MAP ME is an android app that can give you a direction and picture of a building.

Visitors The information ISPSC Map Me will help the visitors who are not familiar with the ISPSC Sta. Maria Campus, it will help them familiarize with the locate the different buildings.

Objectives of the project

The aim of the study is to design an ISPSC MAP ME in ISPSC Sta. Maria Ilocos Sur.

Specifically, it aimed to achieve the following.

1. To gather necessary information needed for the development of ISPSC MAP ME.
2. To create and develop an ISPSC MAP ME using the tool in information Technology.
3. To test the usability of the developed system.

Scope and Limitation

The study focused on the development of ISPSC MAP ME at Ilocos Sur Polytechnic State College. It allows the user to Locate each specific building of Ilocos Sur Polytechnic State College Sta. Maria Ilocos Sur.

The study is limited to android operating system only (7.1+). They can access it even without opening internet connection

Chapter II

REVIEW OF LITERATURE

Literature of GPS

GPS is a global navigation satellite system that determines the position of any target by measuring the propagation delay of the signals from the satellites to the GPS receiver. Typically, four or more satellites need to be tracked to calculate the position. GPS was developed by the US department of defense (DOD) in the 70s only for military purposes. (Positioning, navigation and weapons aiming). In fact, DOD included a distortion in the GPS signal called Selective Availability (SA) so that other people would not obtain better precision. Nowadays, however, GPS is used worldwide for civilian applications (e.g. driving assistance, topography, atmosphere study) and that is why DoD decided to remove the SA. Part of the current research on GPS is focused on increasing precision and combating signals outages by means of external aids, such as INS. (*Halbay Orlando 1997)*

A brief survey of the technologies explored during the past decade and a half is a given below to provide an understanding of the level of research interest in improving the GPS signal accuracy and new technologies. The emergence of new satellites will make GPS applications more predictive, more global and towards longer terms.

The History of GPS Satellite System for Navigation

The GPS satellite system for navigation was designed in the 1970s by the U.S department of Defense. It Started out as a global navigation system for military land-based and air vehicles, with some limited use for the civilian population. But today, the tables have turned- there are more GPS receivers used by civilians than by the military.

Back in the 70's, the military employed a variety of navigation systems such as LORAN (long RANGE Radio Navigation), VOR (VHF Omni-Directional), OMEGA, and a need was felt for a more accurate navigational aid which would be functional all day, all year and everywhere Earth, irrespective of day or night or weather conditions. The military's needs were to navigate its airplanes, tanks and personnel reliably. At that time, the U.S Navy and the Air force were the pursuit of developing systems would meet such requirements with the programs such as transit Satellite system. Timation Satellite System and project 621B. The Department of Defense eventually formed a joint program office (JPO), which consolidated the development to date in what to know today as the global positioning System (GPS) *(Elizabeth Howell Oct ,27 ,2017)*

Literature About GPS Application

GPS (Global Positioning System) for Mobile, like location service which makes possible to identify the location of the user without using GPS receivers, where the location information is derived through the

nearest wireless networks and cell sites Databases to localize the user and also technique of signal strength triangulation from cell antennas is utilized where the location of the antennas is used to supplement the location discovery. The order of services utilized for location finding in the application is as follows. GPS-based services, WLAN- or WIFI- based services and at last the cell triangulation-based services (Google Maps for Mobile 2011b).

Besides the enhanced location finding services the application includes various services supporting car and pedestrian navigation such as Navigation (Beta), places with hotspot, 3D Maps, compass Mode, Offline Reliability, Latitude, Street View, Traffic, etc. (Google Maps for Mobile, 2011a). The Navigation service is providing turn-by-turn GPS navigation service combined with voice assistance for both cars and pedestrians. The place with hotpot services is provides and easy method of search for POLs (Point of Interest) and even provide the personalized advices from google. The 3D Maps service provides 3D map view functionality. The compass service is rotating the maps to direct the user. The Latitude service is supplying the application with location sharing functionality which helps to find the friends and allow friends to find own

position. The Street View service provides the service for enhancing the place finding by providing street-level images and also helps the user to find one's bearing of the ground. The traffic service provides online traffic

situation and aids to find the fastest route (Google Maps for mobile, 2011a)

(Ernestine Lenon, Pepe Dahohoy II)

First GPS Navigation Device

A **GPS navigation device, GPS receiver,** or simply **GPS** is a device that is capable of receiving information from GPS satellites and then to calculate the device's geographical position. Using suitable software, the device displays the position on map, and it may offer directions. The Global Positioning System (GPS) is a Global Navigation Satellite System (GNSS) made up of a network of a minimum of 24 hrs., but currently 30, satellites placed into orbit by the U.S Departments of Defense.

The GPS was originally developed for use by the United States military, but in the 1980s, the United States government allowed the system to be used for civilian purposes. Though the GPS satellite data is free and world anywhere in the worlds, the GPS device and the associated software must be brought or rented.

A GPS can device can have retrieved from the GPS system location and time information in all weather conditions, anywhere on or near the Earth. A GPS reception requires an obstructed line of sight to four or more GPS Satellites,

and is subject to poor satellites signal conditions. In exceptionally poor signal conditions, for example in urban areas, satellites signals may

exhibit Multi path propagation where signals bounce off structures, or are weakened by meteorological conditions. Obstructed lines of sight may arise from a tree canopy

or inside a structure, such as in building, garage of tunnel. Today, most standalone GPS receivers are used in automobile. The GPS capability of smartphones may use assisted GPS (A- GPS) technology, which can have used the base station or cell towers to provide a faster a Time to First Fix (TTFF), especially when GPS signals are poor unavailable. However, the mobile networks part of the A-GPS technology would not be available when the smartphones is outside the range of the mobile reception network, while the GPS aspect would otherwise continue to be available.

The Russian Global Navigation Satellite System

(GLONASS) was developed contemporaneously with GPS, but suffered from incomplete coverage of the globe until the mid-2000s. GLONASS can be added to GPS devices to make more satellites available and enabling positions to be fixed more quickly and accurately, to within 2 meters *(Magelan Traiblazer 1993)*

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