REVIEW OF GIS BASED ANDROID APPS BASED ON REGIONAL, TOPOGRAPHIC AND HYDROLOGICAL FEATURES.

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ABSTRACT: -*Geographical database is the most important factor of data collection in GIS. Geographic information the collection of information about events or places on the surface of the Earth. The Study of organizations and tools used with in the process of collecting data is called Geographic information science (GIScience). Topics related to remote sensing, photogrammetry, web mapping and spatial data organization come under GIScience. There is a wide variety of software available on the internet which allows users to create maps and to visualise the data. Such as Q GIS and Arc GIS free and open-source software also having their paid version available which offers more features for professionals. Most of the application or the Software are embedded with GPS in them. Which gives user their live location on the map which helps in more Precise geodata representation. Global positioning System (GPS) is a satellite network that can communicate with GPS receivers which are embedded in mobiles and other electronic devices which can give your location. Geological and hydrological features are very important in field research. There have been many advancements in many fields in terms of technology and software development. One of them is GIS.*

The aim of our paper is to suggest best Android application available from top 3 apps taken in consideration by comparing them on the basis of features bugs and public review internet websites. After choosing best applications we aldo suggest some advancement in the App for geological topographic and hydrological field.

Key Words: - GIS, GIS application, GPS, kml, SW maps, locus GIS, MapIt.

1. INTRODUCTION: - Data is the most important pre-requisite for research and study purpose in every field and also in the hydro geophysical field. These are basic needs of data collection operations in geographic, hydrographic and topographic data. In 1963 GIS was developed which Can be used to analyze spatial and non spatial data. After coupling of GIS with GPS we get a perfect tool which can be used to collect geographic data with the help of high accuracy GPS. We can also get live location of the user. There are five components of GIS which is, hardware, software, data, people and methods. GIS works on a simple principle of connecting data layers to the geography of the region. The hardware consists of equipment used for receiving and transmitting signals. Software component is responsible for displaying information through any application. Some GIS applications can also use the real time receiver, which are connected to satellite quite complicated to understand also (RTK) receiver also known as Real Time Kinematic receivers. Peoples are required to handle this software and can be handled by many different operational practices depending on the organisation.

Because of rapidly increasing online tools and software there is huge demand of simple and efficient applications for data collection using different techniques like GIS, GPS and other softwares. A perfect application should have maximum features and minimum bugs. Features required for data collection App should consists: -

1) High GPS accuracy

2) RTK - capability.

3) Distance and Area management.

4) Shape file layer. (Data storage format).

5) Import and export of large shape files. (It enables user to transfer shape files).

6) Maximum file types for export data should be supported.

These above points can be expected from a good GIS application. In the first half of our paper, we have discussed about the best app available for android system on online platform and other half gives the future scope of this application.

2. TOP 3 FIELD MAPPING APP WORKS ON GIS TECHNIQUE:- We have gathered Top 3 Android based application for mapping purpose. This apps are included in our paper on the basis of the rating on google playstore. Let us take a view on the features offered by this apps.

2.1 Sw Maps: This GIS application has high accuracy developed by softwel pvt ltd. NIC PAL. The current version available on google play store is 2.7.3.1. having more than 100k-plus has rating of 4.4/5. The main advantage of this app is that it is free from ads, as mentioned on the official website of softwel.

Highlighted features**:**

1) High accuracy. (GPS survey due to RTK capable receiver over Bluetooth).

2) Capable of online base map.

3) Shape file which can be edited.

4) Export file. (Kmz files).

5) Allows to connect external GPS.

Bugs:

1) Cannot upload layer shape file.

2) Lags when user tries to open shape file.

3) Shape file format WGS 1984 coordinate not supported.

4) Only support WGS84 (EPSG: 4326)

5) The company believes shape file ending   SHM not supported but have still mentioned it features.

2.2 Mapit   (MAP DATA COLLECTOR AND LAND SURVEY)Mapit is an android application available on at Google Playstore offered by MapIt GIS limited. Released on 8 Nov 2014, version available on play store is 7.6.0. core It has 2 version paid and free.

Features:

1)This app is basically used for general data collection.

2) For Powerline designing.

3) Field collecting notes.

4) Free version also gives all tools required for GIS survey.

5)Fast and accurate processing of GIS and GNSS.

6) It is one of the best apps for field point of view.

Bugs:

1) Important functionality is limited.

2) Trouble in zoom close to avoid points makes impossible to select specific points.

3) Cannot move point while tracking.

4) Trouble at export point.

5) Apple operating system is not supported.

6) Trouble in placing co-ordinates.

7) Length and Area are not computed correctly may be based on 3D or geodetic form 3 7

8)Labels not working correctly when export as shapefiles.

2.3 Locus GIS: Locus GIS is a professional app for collecting geodata offered by Assam software s.r.o. released on 31st October 2016 having more than 100k download on google play store Current version available is 1. 10. 1. and having 4.2 /5-star rating on play store it is available for both IOS and Android.

Features:

1) The app is for collecting geodata and editing shape file.

2) Creating lines by motion recoy.

3) Import / Expert ESRI SHP files.

4) Export whole project to QGIS.

5) Wide range of maps, support WMs sources.

6) Offline map supports in MB file, SQ lite., tar format.

7) Measuring distance and Area.

8) Collecting Environmental data forest management, agriculture and soil management.

9) Road construction and maintenance. 24 X 7 forecasting of wind a world-wide weather.

Bug**:**

1) Long time GPS Location sometimes is not connected during the survey.

2) Takes very long time to upload 100mb shape files.

3) The app doesn't show attribute details.

4) The free version limits 2°map layers 3 data layers.

5) Position icon accuracy is not to mark.

6) Doesn't provide any manual for data export & import option.

3. BEST APP FOR GEOLOGICAL DATA COLLECTION

On the basis of comparison between top 3 apps available on Internet. If we have to choose only app between top three apps for geodata collection on the basis of user interface, features, accuracy of the app and offline field work.

Fig 1: best application

4. CONCLUSION

In future there is an immense need of creating a single app which just not focuses on mapping, but also focuses on geological topographic and hydrological aspects of the regions. Which will help researchers and scientist to get needed regional data for studies. Developing of App with GIS (can be done by Android Studio). Adding geological and hydrological features like geographic and ground water level of the region and collecting in large scale information from regional offices ground water level can be measured with the help of different machines like earth electric resistivity meter and also rainfall can be monitored using automatic sensor rainguages and deploying the application for Android Operating.

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