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## Detail Survey and Analysis of Resource for Village Functioning using Advance Techniques Q-Gis and Total Station

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**Abstract:** A geographic information system is a special case of information systems where the database consists of observations on spatially distributed features, activities or events, which are definable in space as points, lines, or areas. A geographic information system manipulates data about these points, lines and areas to retrieve data for queries and analyses.

**Keywords:** Q GIS Software, Total Station, GPS.

### 1. INTRODUCTION

Civil engineering is about developing and sustaining infrastructure. The profession covers many areas of interest and a broad range of expertise. As a result, civil engineers work with a voluminous Amount of data from a variety of sources. Geographic information system (GIS) technology provides the tools for creating, managing, analyzing, and visualizing the data associated with developing and managing infrastructure. GIS allows civil engineers to manage and share data and turn it into easily understood reports and visualizations that can be analyzed and communicated to others. This data can be related to both a project and its broader geographic context. It also helps organizations and governments work together to develop strategies for sustainable development. Thus, GIS is playing an increasingly important role in civil engineering companies supporting all phases of the infrastructure life cycle.

Welcome to the wonderful world of Geographical Information Systems (GIS)! Quantum GIS (QGIS) is an Open Source Geographic Information System. The project was born in May of 2002 and was established as a project on Source Forge in June of the same year. QGIS currently runs on most Unix platforms, Windows, and OS X. QGIS is developed using the Qt toolkit and C++.

This means that QGIS feels snappy to use and has a pleasing, easy to use graphical user interface. QGIS aims to be an easy to use GIS, providing common functions and features. The initial goal was to provide a GIS data viewer. QGIS has reached that point in its evolution and is being used by many for their daily GIS data viewing needs. QGIS supports a number of raster and vector data formats, with new support easily added using the plug-in architecture.

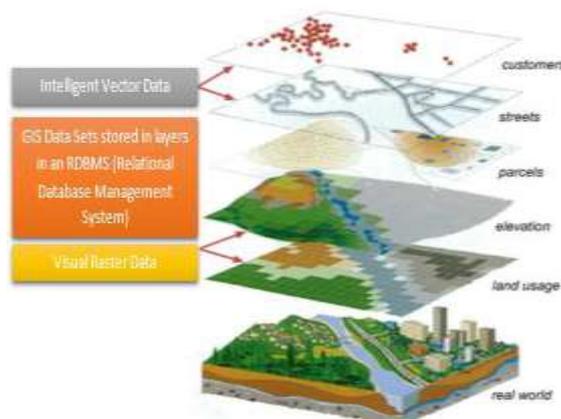


Fig.1.use of QGIS

QGIS is released under the GNU Public License (GPL). Developing QGIS under this license means that you can (if you want to) inspect and modify the source code and guarantees that you, our happy user will always have access to a GIS program that is free of cost and can be freely modified. You should have received a full copy of the license with your copy of QGIS.

A Geographical Information System (GIS) is a collection of software that allows you to create, visualize, query and analyze geospatial data. Geospatial data refers to information about the geographic location of an entity. This often involves the use of a geographic coordinate, like a latitude or longitude value. Spatial data is another commonly used term, as are: geographic data, GIS data, map data, location data, coordinate data and spatial geometry data.

Applications using geospatial data perform a variety of functions. Map production is the most easily understood function of geospatial applications. Mapping programs take geospatial data and render it in a form that is viewable, usually on a computer screen or printed page. Applications can present static maps (a simple image) or dynamic maps that are customized by the person viewing the map through a desktop program or a web page.

**1. METHODOLOGY**

**2. DETAILS EXPERIMENTAL**

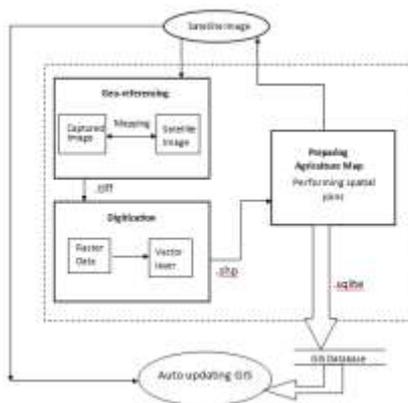


Fig-.1. Flow of the System

**2.1 Starting QGIS**

Assuming that QGIS is installed in the PATH, you can start QGIS by typing: qgis at a command prompt or by double clicking on the QGIS application link (or shortcut) on the desktop. Under MS Windows, start QGIS using the Start menu shortcut, and under Mac OS X, double click the icon in your Applications folder.

Files specified on the command line can include raster's, vectors, and QGIS project files (.qgs):

Raster - Supported formats include GeoTiff, DEM and others supported by GDAL.

Vectors - Supported formats include ESRI .

Shape files and others supported by OGR and PostgreSQL layers using the PostGIS extension.

Join the diabetes statistics to the shape file using a table join – Select Health Boundaries as the target vector layer, specify HRUID2007 as the target join field, and select the diabetes.csv file as the Join dbf table. The join field will automatically populate with the HRGEOID field as the Join field. Create an output shape file, and only keep the matching records. Click OK.

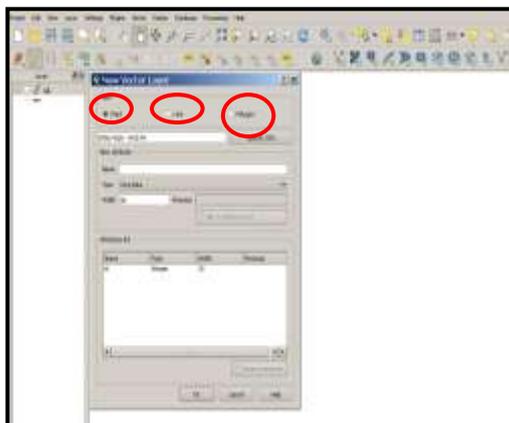


Fig.2.adding vector layer

Add the newly created and joined shape file to your map by adding a raster layer.

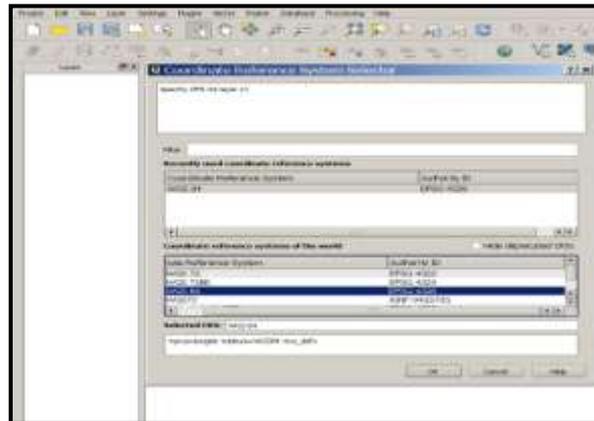


Fig.2.adding vector layer

### 2.2 Digitization Process

Here we are not going to generate the new shape file, but we are working on the available data which is given to you for work.

### 2.3 Data Visualization Labeling

Visualize the labels of data open the Layer Properties click on the Labels option and activate the “Label this layer with” tab. After that the table will active. Select the option which you have to display. You can change the Text Style also. Remove the Health Boundaries shapefile by right clicking on the shapefile and selecting Remove.

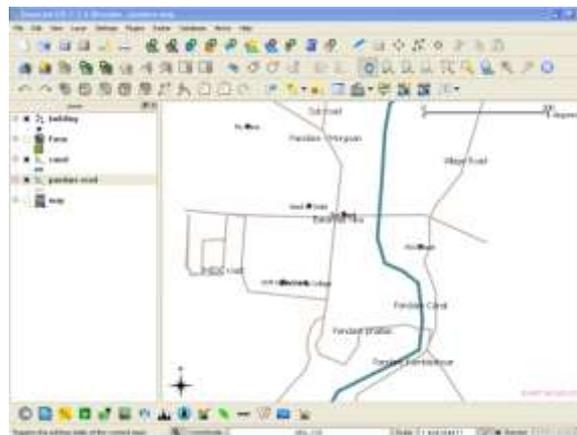


Fig.4.Final map of Pandare Village

Next a calculation must be performed to convert the diabetes field in the joined shapefile from text to number (decimals) so that a classification can be performed on the diabetes field allowing the creation of a thematic or choropleth map. Right click on the joined shape file, and select open attribute table.

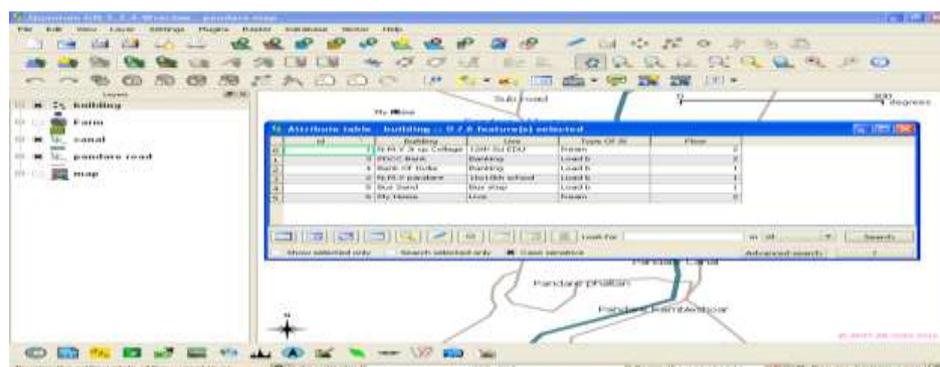


Fig.5. Attribute Table –Village buildings

### 3. RESULTS AND DISCUSSION

#### 3.1. Use GIS for more efficient

- Planning and site location
- Environmental analysis
- Infrastructure design
- Construction management
- Data collection and as-built surveying
- Operations and maintenance

#### 3.2. Result of Work

1. Analysis of different objects Roads, Building, Land use, Slope analysis by using QGIS of proposed village.
2. To measure the area of agricultural land accurately.
3. Analysis of canal, water tank , Road network and to find out new alignment of roadway and Railway.
4. To develop Infrastructure facilities from Population Data.
5. To prepare map of selected area for land cover and land use analysis.
6. Making 3D model of smar village by using AutoCAD integration.



Fig.6.3D model Of smart village.

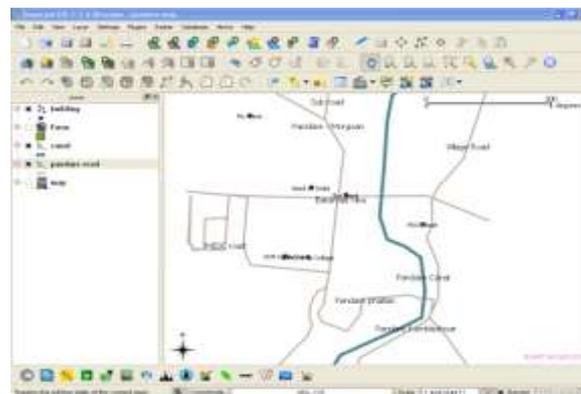


Fig.4.Final map of Pandare Village.

## **CONCLUSIONS**

We can analyze and interpret data according to user requirement. We can represent data by grouping and representing legend ie classifying data according to same types. Also different symbols can be used.

This software can be used in field survey, town planning, road surveys (also existing road database), navigation techniques, flood areas, area covered under forest etc.

## **ACKNOWLEDGMENTS**

Visualizing assets and the surrounding environment when you build, upgrade, and repair infrastructure helps you decide how to prioritize your work, convince others of its importance, and make good decisions about how to move forward with your plans. Having an accurate, clear picture of the project helps you better understand needs, reduce problems, and mitigate costs and environmental impacts. These processes are improved when GIS is the core system for data management and visualization. With all the demands on your time, using tools that streamline your business processes and provide you with the best mapping and visualization makes sense.

GIS can help you present information in a straightforward way to partners in your projects, government officials, and the public. With Q-GIS Server technology, you can take maps that you have created with Q-GIS Desktop software and publish them over the Web so you, your partners, and your staff in the field can see how a project is progressing.

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