# Development of Field Colletor Mobile Application for Andriod and IOS based without programming knowledge

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*Abstract: Land Survey is a process to collect the geographical location, current status and other relative information of the object. There are so many tools available to records status and observe the condition of the object. As the new technologies emerges, even though every sector public/ private are gaining interest and profits using these technologies. GIS based Land survey Mobile Application are the result of newly growing technologies. These applications are very helpful for survey in collecting or recording information. These applications are very helpful in government sector as well as in private sector. There is no single mobile application which directly work on android and ios both.If we developed this type of application It is time cosuming process as well as costly solution for developing a basic field Mobile applications Here we had developed a basic field collector application which will work on both (android or IOS) using QGIS Plugin whose named as QField for this purpose. In this paper we had elaborated how fast we can have developed these applications.*

**Keywords:** mobile application,android, IOS, QGIS,field collector

## I. INTRODUCTION

Land survey is a process of collecting information of an object, their geographical location, current status and other information. After analyzing information, it helps in planning, making decision support system and also provide a business system. As the technology growing day by day everyone wants to develop application rapidly for any use. Geographical Information system make this Land survey process very easy, fast and centralized. It increases efficiency, planning effectively for site location, taking large amount of geospatial data and it automate the tasks, also save money integrate the survey projects in a single database. Land surveys are done by many government departments to check the status or progress of development in their region and private companies are also doing surveys to sell their product or establishing their business. So, the need of Surveys is increases and newly emerging technologies fulfil this need.

These survey applications are developed using Android/ IOS Mobile application technologies. The purpose of this paper is to present how fast we can develop these Land Survey Application. It is done using GPS and capturing images of current status ịcof work and other relative information are recorded. This information is used to present on Web Application or any system for analyzing, planning and decision making. The whole process of creating this mobile application takes much time.

To reduce development time of Land Survey Mobile application we are discussing about QField Mobile application in this paper. We can use information collecting from this application into QGIS, a desktop application for taking other decision and planning.

## II. METHODOLOGY:

**QGIS:** QGIS stands for quantum GIS. It is an open-source software, freely available, cross-platform desktop application. It is used for creating, editing spatial data, preparing maps and other variety of standard GIS functionalities. It supports vector data as well as raster data sets.

**QField**: It is also open-source, freely available Mobile application for Android and IOS. It is used for collecting mobile data. It works offline also and forms can be customized as per the users requirement, GPS global positioning system and camera functionality also in this app. It supports various file formats and wide symbology of GIS.

**QField Sync:** It is an open-source, user friendly plugin of QGIS. It is used to sync the QGIS project. After analyzing the current project, suggests required actions which enhanced performance and made project working on QField.

**Work Flow of QField:** Install QField Sync Plugin in QGIS for desktop and QField Mobile application in surveyor Mobile.
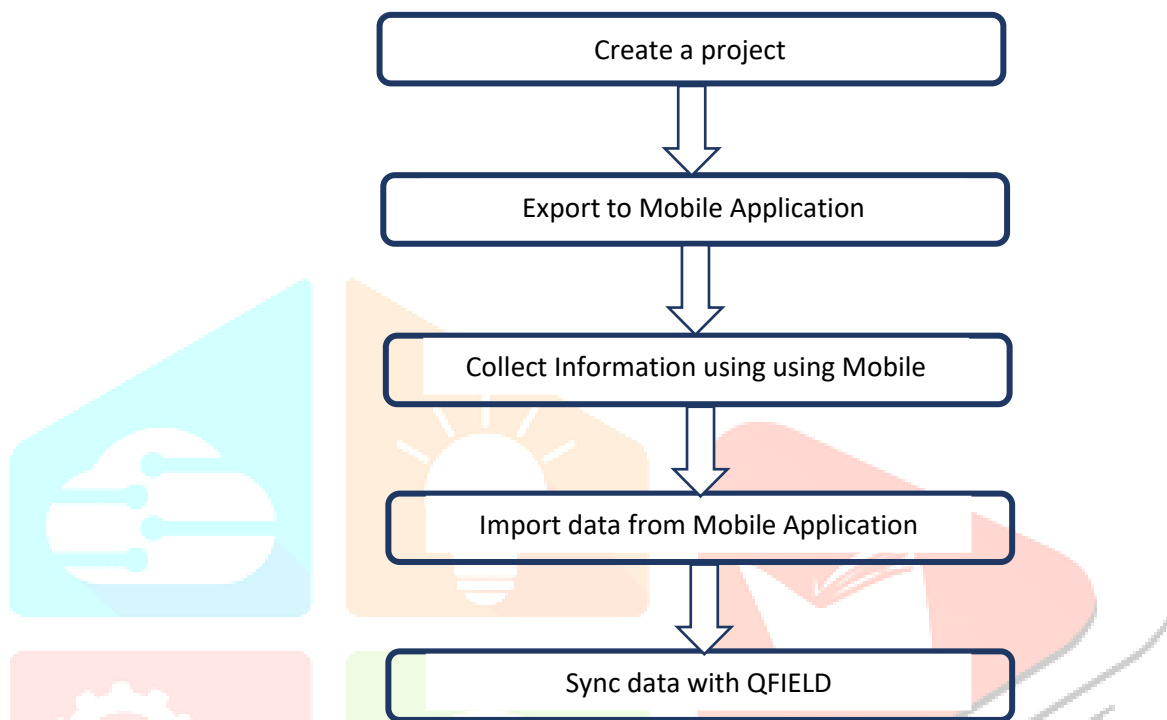


Some basic introduction of Qgis is shown in below fig. which is used in this project like processing toolbar, browser panel, layer panel. Geocoding and Qfield Sync plugin is available in plugin tab.
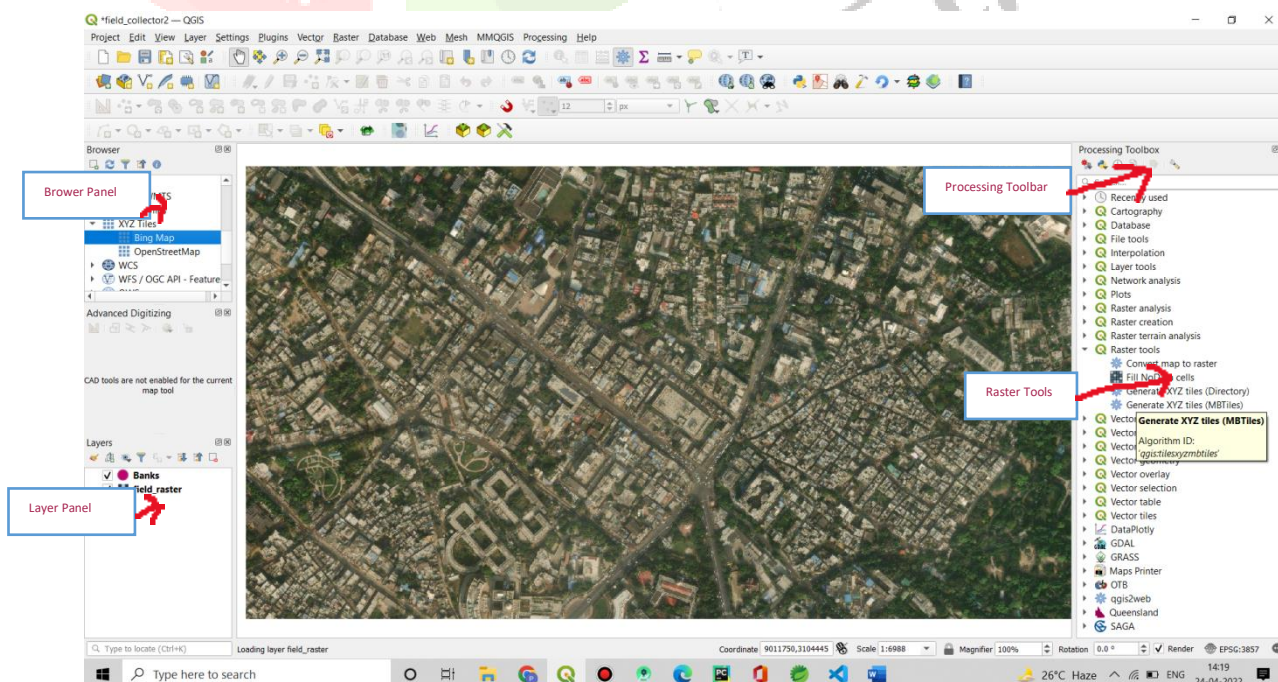


Fig: A

Steps are explained as follows:

1. Create a project in QGIS. Add a satellite map as raster layer, in this paper we use Bing Map from XYZ Tiles from the browser panel in QGIS. Create New Connection as shown in fig: 1(a).
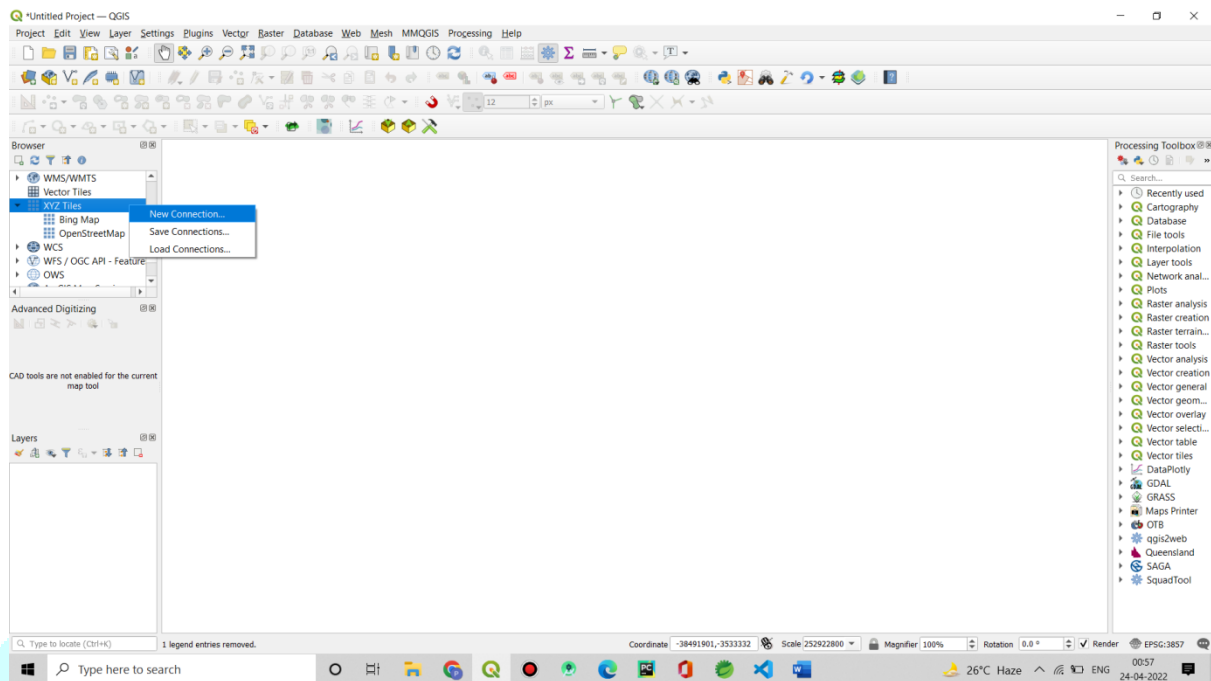


Fig: 1(a)

Give name and Url of any desired map like Open Street Map, Open Todo Map, Google Hybrid, Google Satellite, Google Road, Bing Aerial. In this paper we are using Bing Aerial Map as shown in fig:1(b)

A shown in fig:1(c) it is a full world map of a very high resolution.

Install another plugin Geocoding, helps in finding the address in the map. Then select a working area which have to collect field data.

After this clip the working region in which we are taking survey using Generating XYZ tiles (MBTiles) of Raster Tools.

We are creating a new shapefile of Point Geometry to collect point data for Banks survey, and customize a Form from the Attributes Form for collecting other relative information of Banks like: ID, Name, Date of Establishment, Branch, Address, Photo, are the field of the Form. In QGIS there is a facility to upload photographs as an attachment. We can add photographs using this in the survey. This shapefile is created for showing the information of Banks. Initially this is blank, data for this is collected by a survey.
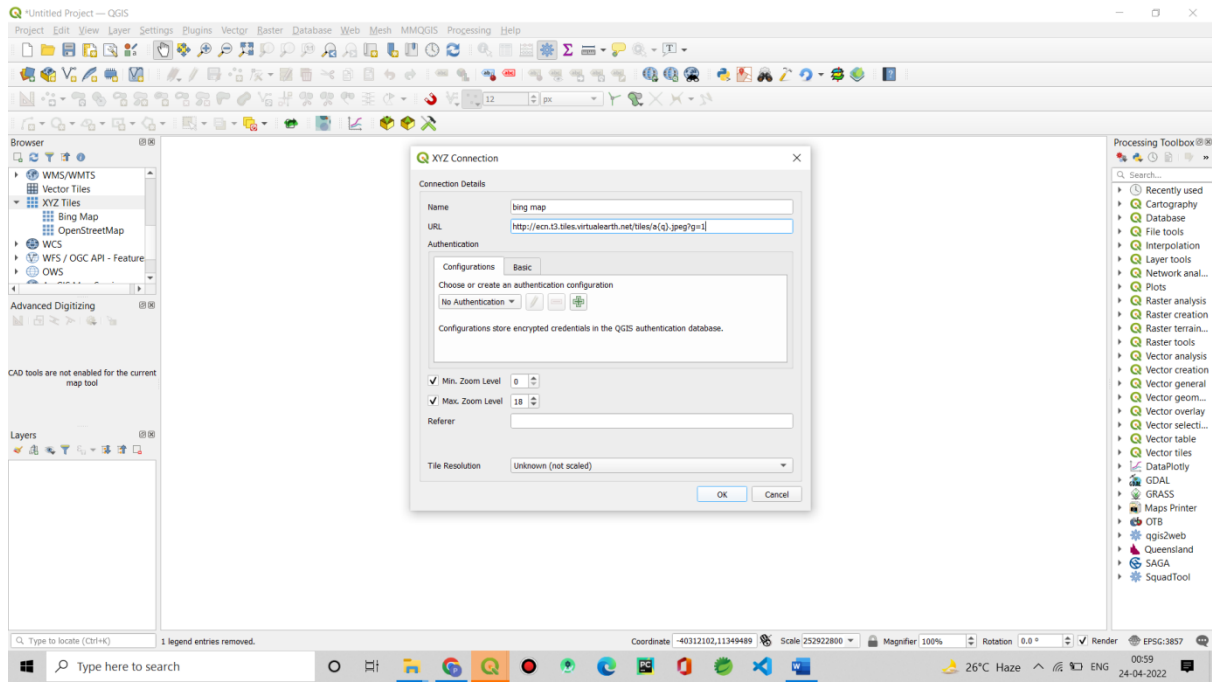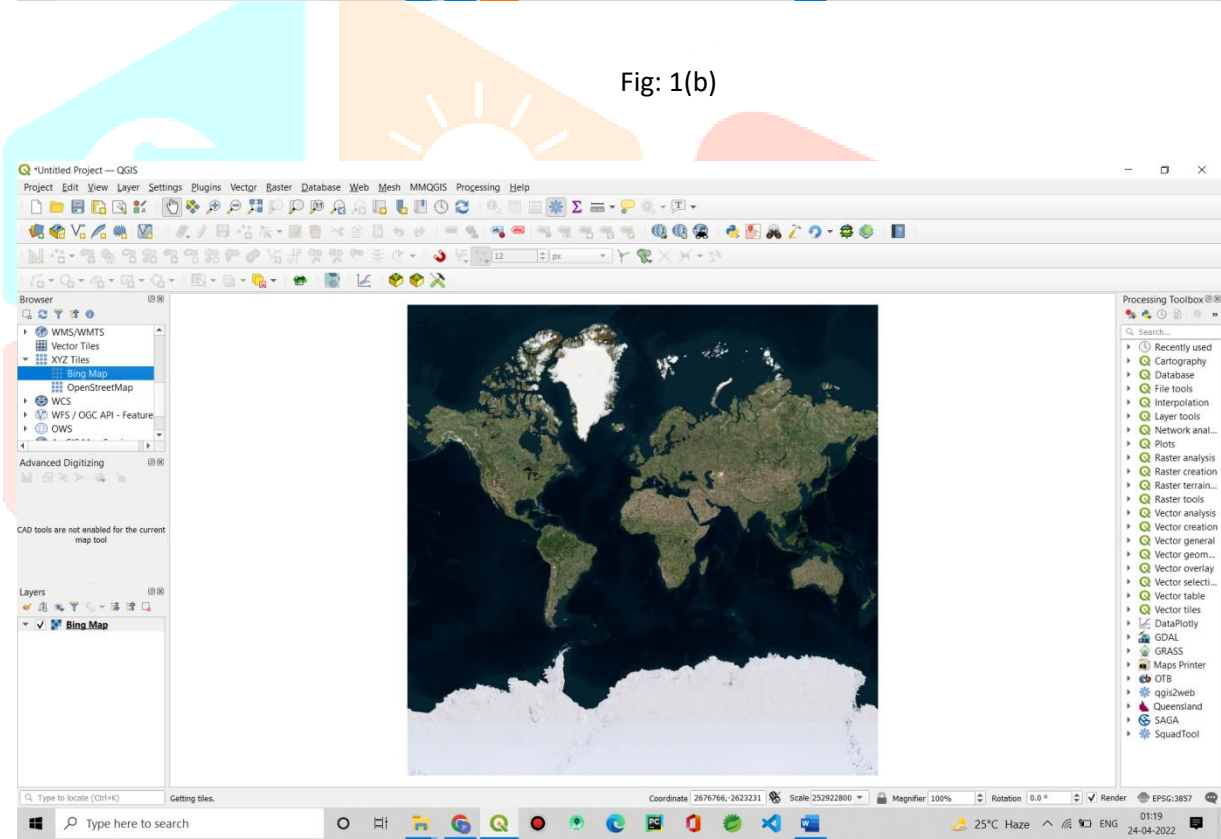
Fig: 1(b)



Fig: 1(c)

Then packaging this project for QField using QField Sync, for this set path of export folder for exporting project to QField Mobile application.
Create a folder in Surveyor's Mobile and Copy the project from export folder and paste it to the newly created folder in Mobile.

2. Open this project in QField Mobile Application for this select the folder from the storage of Mobile in which project is pasted then collect the data about Banks. This application also facilitates to capture image of location. All the images are saved inside the projects folder.

3. In qfield app, open the project, satellite map is loaded, now enable editing mode, select location in a map, for that point fill further information as shown in fig:2(a). After completion of survey all the location of Banks are marked on map as shown in fig:2(b).
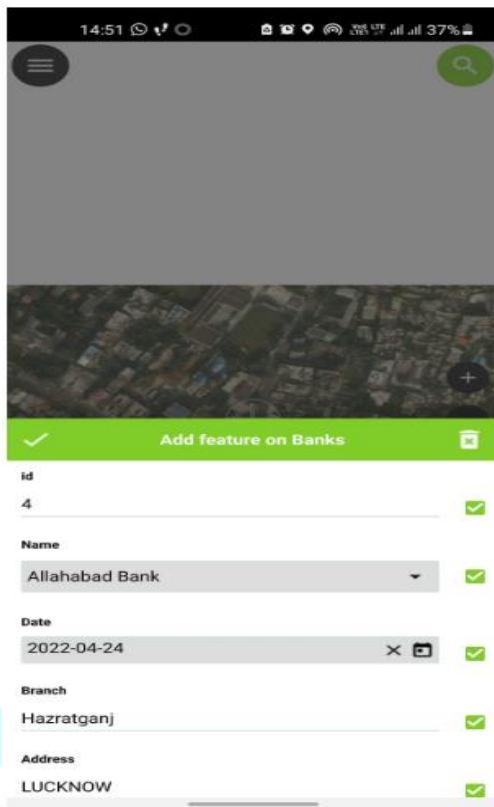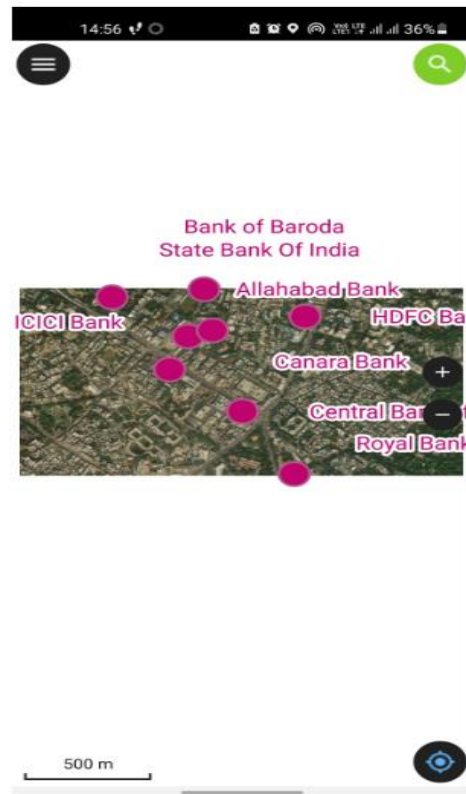
Fig: 2(a)                    Fig: 2(b)

4. After collecting data from Mobile Application, copying the project from Mobile and paste it to a import folder in desktop to import project in QGIS.

5. Then synchronize data with QField sync. All the data for Banks collected from Mobile application is Now shown in the shapefile which is created for Banks. The output of the survey taken for banks is shown as in fig:3.
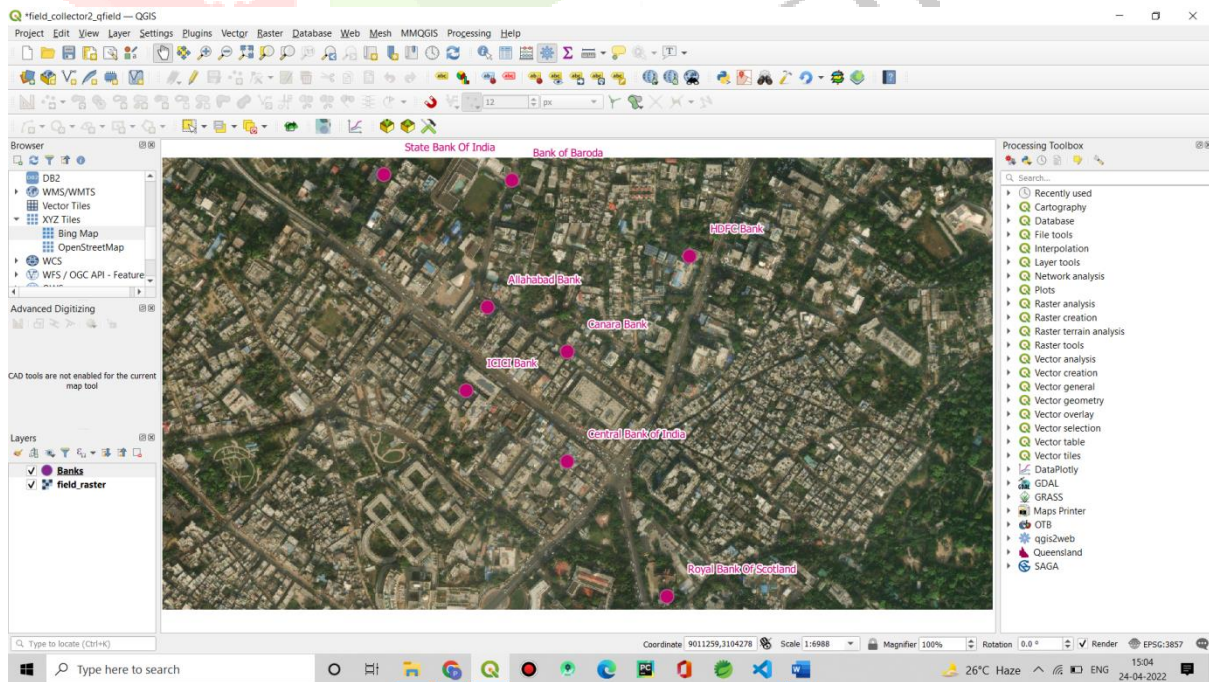


Fig:3

**Conclusions:** Basic Field collector mobile application is developed without knowing the knowledge of programming.It will be successfully working . Do not have to write data on copy again and again.This app is time saving as well as cost saving.

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