

## Review on Mobile Application for E-Land Information System

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**Available online at: [www.ijcseonline.org](http://www.ijcseonline.org)**

**Abstract**— The proposed system describes “penetration of mobile phones has been incredible and has reached every nook and the corner of the country and has laid the foundation for economic growth, social empowerment and grassroots innovations. Mobile phone has permanently transformed the socio economic strata of the society. Mobile phone has allowed a lot of application to be developed and implemented for the benefit of the society. The smart phones have opened a plethora of opportunities and one such area is the land office which caters to provide and regulate the details of land, its sale and purchase etc. A mobile application can be developed which allows the smart phone user to obtain the land record and the details of the owner’s that to at the touch of the finger. This application can simplify the land office functioning and allows the user to get the information about the land at the comfort of his home instead of going to the land record office and struggle to get a piece of information”. Mobile communication technology has quickly become the world’s most common way of transmitting voice, data, and services in the developing world and given this change the mobile applications (Android Apps) in general have a tremendous potential to provide access to information to millions of people that to in a hassle free manner. The mobile system has allowed developing GPS based application for navigation and mapping and easily provides the location information from anywhere. The Land Map Android Application & Web Server are proposed in this work which is capable of providing land information along with the owner certificates.

**Keywords**— Mobile E-land application, Android, Global position system (GPS), Google Maps.

### I. INTRODUCTION

E-Governance facilities are being promoted by government throughout the country and has helped the citizens to be aware of their rights and has also helped them to take advantages of various facilities floated by the government. Integration of mobile technologies with e-governance scheme has been a game changer and had benefitted the common man like anything.

Such a scheme has improved the effectiveness of the schemes and has helped the government to take forward the country in the right direction. In this work we intend to introduce the features, technologies and design of the Android mobile device application, E-Land for the customer (client) of Indian citizen and land agency.

The proposed e-Land record information system will be designed and implemented with Google Map using Android & Java by developing this E-Land mobile app. This e land-app is proposed to be developed to provide improved and flexible e-Governance facility to the common citizens of the country. The proposed system if adapted will set a trend implementation of the real-time applications to be embedded with the e-Governance facilities.

This work covers the development of the overall system architecture along with its functional components and scope of the very appealing E-Land for land details and interconnection with the land owner & land agency.

The overall advantages of the proposed mobile land app and server application will also be identified in comparison to the existing e-Governance system, giving a viable option to adopt and make use of integration of mobile technologies for providing e-Governance through this m app. With the proposed E-Land application, the Land Office / National Land Agency (BPN) can record land that has not been certified and the public can easily see the mapping of land certificates not manually, but digitally, facilitate the storage in the form of softcopy. The use of GPS technology on the smart phone will be used in determining the coordinate point of the boundary of the land location. Thus the dynamics of changes in land ownership administration can be more accurate and real-time.

The developments of E-Land will lead to more uniform application development standards. This work is expected to increase innovativeness, giving overall advantage to the customers in choosing and selecting from the great pool of m-apps offered by various platforms in this global digitized age. This fully featured and wide-variety E-Land will give an

option of the availability (anytime, anywhere)—24 × 7 of wide variety of remote information at the door step of the facility centric citizens, which was not possible some years ago. Mobile software development is thus paving the way for the future. Various programming languages are being used for developing m-apps such as: Java for Android OS, Visual C#/C++ for Windows Mobile, Objective-C for iPhone OS, etc.

## II. RELATED WORK

This paper is based on the research results and application that has been developed, it can be concluded that: design of digital mapping of land certificates that have been made can be used as a supplement to the online maps owned by the national land agency. On the web application owned by the NLA in [peta.bpn.go.id](http://peta.bpn.go.id), no information about the ownership of the land and the online map shows only the relative position of the distribution of plots. The land officers of the NLA put the border sign of the land using stone materials or certain tree. These physical materials can be easily removed. Using coordinate boundary recognized by Google as proposed in this paper; make the border sign more stable. Admin (NLA) and user get information on a map in accordance with the information contained in the land certificate. [1]

In this paper, e-Land record information system has been designed and implemented with Google Map using Mobile Commerce by developing this mobile phone application. The mobileLoanapp, a low-cost mobile phone application has been developed for the loan approval process of the bank. Google Map has been used to display the land record images while M-commerce transaction has been done by debiting the transaction charges (for transaction connectivity between the mobile, bank server and land server) from the client's saving account. The development of this m-app, mobileLoanapp results in simplification of the already cumbersome process of getting approval of the loan from the bank. Both the land server (official server of revenue department for providing land records) and the bank server (official server of the bank) work in interconnection to provide authentication personal information about the client (customer) and the relevant authentic land documents. The adoption of mobile Loan App will thus impact greatly the lives of common citizens, who will be the real benefactor in this case. The combination (integration) of all the advantages of the mobile technologies through this developed mobile Loan app combined with e-Governance and bank server facilities add greater dimension, scope and versatility to this developed mobile phone application (mobile Loan app). The local population that has remained reluctant to the use of various existing applications due to the cost of cell phone communication can find solace in using mobile Loan app. The low-cost design and implementation of mobile Loan app has thus saved time of

the customers & provided more flexibility and efficiency to the bank and land administration services. The ease of use (no earlier experience required), its lightweight design and impressive features make this development an application worth of its use. The existence of Wi-Fi network combined with increased Internet usage in the recent times offer great opportunity to the state Government for the deployment of mobileLoanapp. The development of this mobile application can be seen as an opportunity for its further seamless integration with cloud services for the future work. [2]

A research conducted by Rafialy and Sedyono related to the utilization of cloud computing in Google maps for mapping of land function shifting information in Minahasa Tenggara Regency results an application that can be used to monitor the land use. This application is useful in giving information about lands and land shifting function for food production, along with the factors that affect agricultural production which are depicted in a digital map by utilizing Google maps and Google satellite combined with cloud computing services. [3]

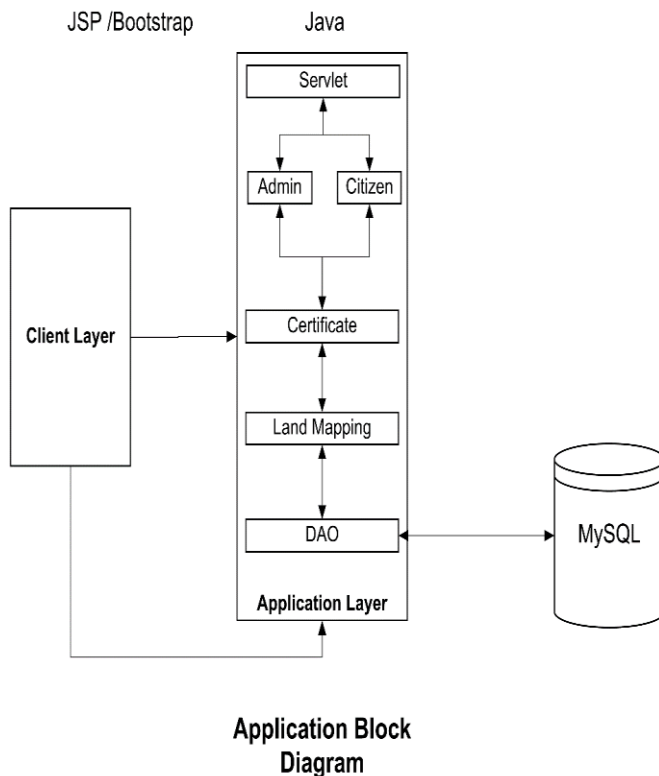
This research conducted by Isnandar, evaluated the Accuracy of Utilization of Quick bird of Imagery in Google Earth for mapping land parcels. The results of this study are the images obtained by the method of screen, premium and mosaic on a relatively flat area has better accuracy, compared to the relatively hilly area. The premium method produces images with better accuracy than the screen and mosaic method. A research conducted by Rakhmat compares the result measurement of field boundary coordinates using CORS GPS with a method of RTK (Real Time Kinematic) and NTRIP (Networked with Transportation of RTCM via InternetProtocol) with the result measurement of field map coordinates via terrestrial measurement [13]

This work has been motivated by some previous work on the use of mobile technologies for the development of mobile applications (m-apps) for real-time projects involved in e-Governance initiatives and for various other real-time application scenarios around the world. From the previous work we get the idea for mapping the land using Android App and showing it on google map for better access for third parties especially for government agency for land development. The need and importance of the implementation of location based services in Android, providing the clients with services that originate from the geographical location of user's mobile device has been emphasized by Ch. R. Rani et al in their research work. The work on iOS application for university campus for iPhone, iPod touch and iPod has been done in order to simplify the livability of the university for students. [6]

### III. METHODOLOGY

E-land web application this will be a server application where all the data will be stored and it will only be accessible by land Agency. E-land android application this will be a client application which will provide an option for viewing land information by citizen or land agency. Citizen can also map their plots or land and publish the certificate of ownership provided by the land agency. The design of E-land application for land certificate mapping digitally. Position of land geography can be known using of GPS on mobile devices and coordinate points can be determined manually by moving pins which are available on Google maps. The mapping accuracy is confirmed through a field survey and can be matched with the existing land certificates.

#### APPLICATION BLOCK DIAGRAM



Application Block Diagram

#### MODULES

In the proposed system we intend to implement following modules

There will be two main modules in this project

- Web Application
- It's basically a website in which we will implement the following modules
  1. Admin
  2. Citizen
  3. Certificate

4. Land Mapping
5. DAO (Data access object)
6. AES (Advance Encryption System)
  - Encryption
  - Decryption

Android Application: - This is a client application for the web site which will allow the user to access the web site features in android device.

### IV. RESULTS AND DISCUSSION

The application was designed using UML. The UML diagrams used are context diagrams and sequence diagrams. 2017 International conference on informatics and computing (ICIC). The purpose of this design is that the parties can grasp and understand the design to be built.

The main aim is to provide e-land mapping application for India Citizen and Government which provides a robust architecture for locating the details of land owner. The applications will consist of and Web Application and Android Application which will allow user (citizen) to map their land or plot using Android Application and will also allow the land agency to use both web application and android app to maintain the records as well as issue the ownership certificate to the land owner.

We intend to develop this application on Java Platform and all the data will be stored in my SQL database server. The access to the web application will only be provided to the land agency.

### V. CONCLUSION AND FUTURE SCOPE

#### CONCLUSION

In this work we expect to develop an, e-Land record information system which will be designed and implemented with Google Map using Java in form of a mobile phone application. We will be able to develop an android application E-Land capable of mapping the land. Google Map will be used to display the land record images while ownership certificates will be published by land agency or Municipal Corporation through E-Land Web Application. We hope that the development of this E-Land will result in simplification of the already cumbersome process of getting land details for any kind of development. The Application will have two main entities Admin (Land Agency or Municipal Corporation) and Citizen (land owner) and E-Land application will provide more practical use to both. As the coordinates are mapped through GPS and not manually it becomes quite easier for the admin to handle the system. It is expected that the system will be more accessible and responsive for the users.

**FUTURE SCOPE**

In this E-Land application proposed to be developed we still observe some shortcomings that require further development and research considering the future development of technology.

Currently the proposed system is expected to have an ability to map the land and provide the owner ship certificate to the owner but in future development work can be done to move a step head and provide an option to view the land in VR (Virtual Reality) mode, Google 360 View and also provide option to upload the image of owner. Options to provide notification related to land tax, land registration etc. can also be provided.

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