# Person Identification System: Mobile Cloud Computing

B.R. Chathuranga *and* R.W.V.P.C. Rajapaksha
*Uva Wellassa University, Badulla, Sri Lanka*

## Introduction

At present, obtaining the correct identity of a person has become a challenge with the existing record keeping system in Sri Lanka known as national identity card. There are so many disadvantages in this system such as, fake identity cards can be created to pretend as someone else and this card only shows some basic information like name, date of birth, place of birth, occupation and address of a particular person. However there is no way to obtain his/her crime activities, traffic offenses, bank details to the authorized community such as government security sector.

This research discusses a method of storing the information of Sri Lankans in a centralized database which is manipulated by a cloud application. The proposed system facilitates to retrieve data from cloud database in a very accurate manner with a mobile device and provide facility to insert details of the people whenever necessary to the centralized database.

This system consists of three main modules. The first module is a centralized database which is used to store the records of user's crime records, traffic offenses and person details. Cloud web application is the second module. Benefits of cloud web application are data can be cached locally for full-offline mode, can be used from web browser or custom built applications installed on Internet connected devices such as desktops, mobile phones, and can be used to access a wider range of services such as on-demand computing cycle, storage, application development platforms. Third module is the mobile application, which can be executed in Android platform (Meier, 2010). The mobile application can access the cloud and retrieve personal records for a particular person in online or offline mode. Unlike conventional mobile computing technologies, the resources in mobile cloud computing are virtualized and assigned in a group of numerous distributed computers rather than local computers or servers (Hans et al., 2012).

Every person has a unique identity number in National Identity Card (NIC). This NIC is used in the centralized database as a primary key to distinguish one person from another. This research suggests a new concept for the traditional NIC to attach a Quick Response (QR) code. The mobile application has the capability to read this QR code and pass the information integrated in the QR code to the cloud application. Cloud application will update the information to the centralized database.

## Methodology

Figure 1 depicts the overall design of the proposed system. Mobile application and cloud application are the main modules of the system.

The mobile application is implemented with three sub modules namely GUI, Json data interchange and the QR code reader. QR code reading module utilizes the mobile device camera to read a QR code from the NIC. Afterward extracts the particular NIC number and send to the Json parser. This module not only supports for QR code but supports for bar code also. GUI module interacts with the user by displaying the relevant information and receiving particular input from the user. The Json data interchanging module works as a bridge between mobile device and cloud application. The responses will generate according to the user requests by this module.

Web application, Model, View and Controller are the sub modules of Cloud application. The web application is developed on Zend developer cloud (Allen & Brown, 2009). It interacts with the requests receive from the mobile application and manipulates the MySQL database. Web application implemented according to the Model-View-Controller architecture. The model consists of the application data, logics, and functions of the web application and database directly interacts with this. View use to display the content to the user according to the controller behavior. The controller is the intermediate between model and view. Controller handles the user requests which are received from the browser and also from the mobile device. Authorized agents can use the mobile application to obtain peoples' information and also they can update the peoples' traffic offenses and crime records instantly to the centralized database. When updating the database with new records, the mobile application automatically uses the Global Positioning System (GPS) to find the current location of the user. Moreover the name of the agent who performs the operation and the current date automatically updates. Then it updates the information for that corresponding identity card number.

The cloud application is used to maintain the database such as insert, update new citizen's details and to maintain agents' profiles. There are two types of users in web application. They are agents and administrators. Agents can create, update, delete and search citizens. But administrators can perform everything that agents do also they can create update delete agents from the system.

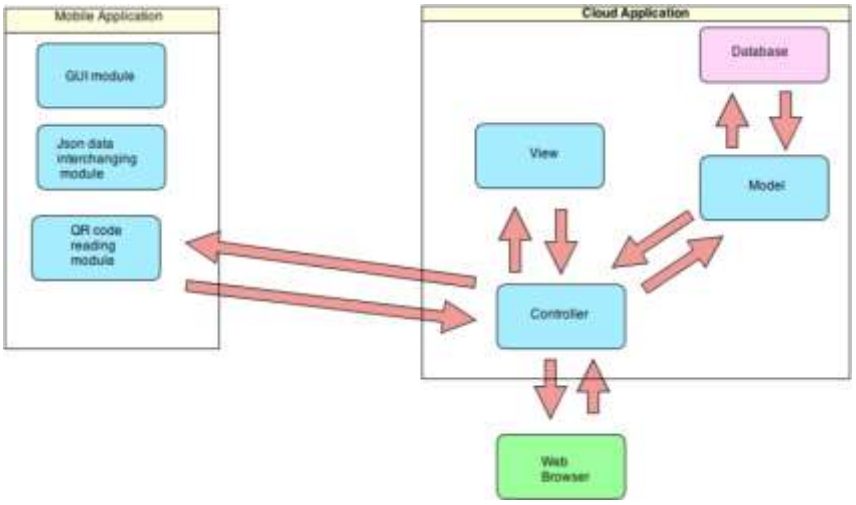


Figure 1. Overall design of the system.

### Results and Discussion

Using this system,

- The authorized agents can easily monitor peoples' past records.
- Easily update peoples' offenses to the centralized database in more detail.
- People's information can be stored in a centralized database which can be accessed from anywhere using the mobile devices.
- Agents can be created using the web application to work with the mobile application.
- Peoples' information can be searched very faster using web application because database indexing technique has used.
- The NIC number can be entered either manually or QR code reading option can be used for very fast and more accurate results.

## Conclusions

This system can be used to replace the existing identity card system, which means the only change needs to be done is attaching a QR code to the national identity card. Then the QR code will be used to read the identity card number quite efficiently through the mobile application. When an agent retrieves information from a particular identity card, he can compare the information which obtained from the cloud application, with the information available on the identity card. For an example he can compare the name and the photo. Therefore nobody can create a fake identity card to pretend somebody else since correct information was already in the cloud application. The system provides the facility to update the citizen information instantly. Due to this system nobody can keep any fake identity and they cannot hide any offenses which they have already done. When the department for registration of persons creates identity cards, the basic information can be added to the cloud application. Then the relevant information is available in the system.

## References

Allen, R.L.N., Brown, S., 2009. Zend Framework in Action.Manning Publications, USA.

Han, Q., Abdullah, G., 2012. Research on Mobile Cloud Computing: Review, Trend and Perspectives in Proceedings of the Second International Conference on Digital Information and Communication Technology and its Applications (DICTAP), IEEE, Pages 195-202.

Meier, R., 2010. Professional Android 2 Application Development.Wrox Press Ltd, Birmingham, UK.