



MOBILE APP 2017: MAINTENANCE OF CONSTRUCTION SITE DETAILS THROUGH ELECTRONIC SIGNATURE

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ABSTRACT: Using cloud storage users can remotely store their data and enjoy the on-demand high-quality applications and services from a shared pool of configurable computing resources without the burden of local data storage and maintenance. Data access control is an effective way to ensure the data security in the cloud. The data access control becomes a challenging issue in cloud storage systems and is suitable to data outsourcing, untrusted cloud servers. MD5 is regarded as one of the most suitable technologies for data access control in cloud storage because it gives data owners more direct control on access policies. It is difficult to directly apply existing CP-ABE schemes to data access control for cloud storage systems because of the attribute revocation problem. The data access control scheme for multi-authority cloud storage systems is designed to issue attributes independently. A revocable multi-authority scheme and apply it as the underlying techniques to design the data access control scheme is proposed. The attribute revocation method can efficiently achieve both forward security and backward security.

Keywords: [Access control, multi-authority, Attribute revocation, cloud storage].

1. INTRODUCTION

Operating Systems have developed a lot in last 15 years. Starting from black and white phones to recent smart phones or mini computers, mobile OS has developed a lot today. Especially for smart phones, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android. Android is one of the most widely used OS for mobile phones. Android software bunch comprises not only operating system but also middleware and key applications.. Android Inc was originated in Palo Alto of California, U.S. by Andy Rubin, Rich miner, Nick sears and Chris

White in 2003. Later Google acquired Android Inc. in 2005. There has been number of updates in the original versions of android after the original release.

Android is designed primarily for touch screen mobile devices such as smart phones and tablet computers and android OS is based on Linux kernel. Android is basically an operating system for smart phones. But we find now integrated into PDAs, touch pads or televisions, even cars (trip computer) or notebooks. The user interface of Android is based on direct manipulation, using touch inputs that loosely correspond to real-world

actions, like swiping, tapping, pinching and reverse pinching to manipulate on-screen objects. Internal hardware e.g. accelerometers, gyroscopes and proximity sensors are used by some applications to respond to additional user actions. For example altering the home screen from portrait to landscape depends on how the device is aligned. Android permits user to customize their home screens by means of shortcuts to applications and widgets, which allow users to display live content, such as emails and weather information, directly on the home screen. Further notifications of app can send to the user to inform them of relevant information, such as new emails and text messages.

Android comes with an Android market which is an online software store. Applications developed by third party developers are downloaded by users easily and those applications are in a user friendly manner. About 2.0 lack+ games, application and widgets offered on the market for users to download. Java programming language is used to develop an application in android. Open source software Android is available for developers to develop an application which can be further used for selling in android market. There are around 200000 applications developed for android with over 3 billion+ downloads. For software development, Android provides **Android SDK** (Software development kit).

Nowadays, in the construction field all civil engineers are using paper and pen for entering the coolie details. This process is very much time consuming and it involves a lot of manual work to be carried out. To update the day today activities, like entering the coolie detail and stock detail every civil engineer requires a paper and pen. They also require a separate calculator to calculate the coolie details and also stock details. To provide all these functions within note book or paper and pen is a tedious process. So to solve this problem a new application was proposed. By using this application it is going to be an automatic one. This application will maintain

the labor attendance and daily wages details of each worker through electronic signature. And here, electronic signature is saved in the image format. Also, this application provides the summary report for each building either weekly or daily. So that civil engineers can easily calculate the profit and loss for each building.

2. RELATED WORKS

To automate the building construction there are various methods and principles are used.. Here, is given the one example is Android based mobile application to monitors the expenditures made and works performed by the various sites of the Construction company. Various site construction works and expenditures are recorded and it can be watched at any time. Using the Android based mobile application the day to day behaviors of the remote construction site can easily be updated to the remote database server [2]. At the beginning the site supervisor using his login credentials, has to login in the mobile application loaded in his device? After that the day to day behaviors along with the photographs of the works performed has been uploaded.

Android mobile application for attendance monitoring system will be installed on the professor's phone as well as student's phone which runs android OS. It intends to provide an interface to the professor who will require least details to input for marking of attendance of a specific class of students. Besides that, the application supports the robust user authentication and rapid transmission of data. Another distinct feature of the entire application is to provide options to the user such as feedback provision, attendance retrieval in a very convenient way, messaging between user and professor and campus notifications like low attendance reminder, lecture amendments to name a few. The application therefore build would also help to avoid the chance of a proxy as the system has biometric scanning which will serve the purpose of authentication. [5]A proposed

structure explained here joins the concepts of location and user tracking in an extensive existing control system.[1] The experimental framework prototype uses a Wi-Fi network infrastructure to let a mobile device determine its indoor position as well as to send IP connectivity. Data pre-buffering and pushing information from server to user's PDA are used by user location. Experiment shows that location determination can be realized with a room level granularity. Location information is used to determine an actual user position and his future position. We have performed a number of experiments with the control system, focusing on position determination, and are encouraged by the results.

The system is made using Android operating system and removes all the anomalies of existing system. [3]. It has various dynamic features that are listed below as follows:-

1. A step towards futuristic e-schools, colleges.
2. More secure than traditional systems.
3. Attendance information is available 24x7.
4. Significantly reduces paper wastage.

System resides in the new concept of QR-Code and Scanner Application. Candidate details made to hide in the QR-Code. By using the scanner android app the QR-Code is scanned and information are retrieved after that the voting is performed. In the proposed system, we are using QR code for identify image codes. By using smart phones to provide various services that can recognize the authenticity of any voter details. Therefore QR code [4] verifies voter_id no by capturing it through the smart phone, then decodes and sends it to the server for authentication. The server receives the selected voter-id number list from the customer and the response received from the customer enables the consumer to decide based on the voter authenticity.

3. METHODOLOGY

While it may seem like a relic of the past, there's still a certain attraction to signing

the name on the dotted line. Picking up a pen and manually scribbling the signature constitutes security sign, whether it's a daily coolie voucher or a credit card receipt. As it moves into an increasingly paperless world, this practice seems increasingly anachronistic. The use of an electronic signature is faster and more efficient to print the process. But do these electronic representations include the same effect, in terms of make an impression upon us the importance of this transaction and, more broadly, the significance of honesty. E-signatures are one of the fastest emergent global practices because of their expediency. Much less is known, however, about whether people identify e-signatures to be characteristically equivalent to usual hand signatures.

A. Pre-Processing

Taking signature images from the web page

1. Adjust the property of signature
2. Discover the exact position of the signature in the signature box
3. Discover the direction of the signature and rotate it with that position
4. Resizing the signature with the collection of sample database signature

This phase is used to clean the image obtained. By using techniques like data area cropping, the signature is pre-processed. Cropping creates a new image by selecting a desired rectangular portion from the image being cropped. The unwanted part of the image is discarded. Image cropping does not reduce the resolution of the area cropped.

1) Taking signatures from the web page:

Typically the app saves the signature in form of an image. At this point the problem is to find out the signature from the app. It is not easy because there may be many different textual content and patterns in that app. Therefore it is required to set a signature area, which will help to identify the exact boundary of the signature in that image. If the signature area had been identified (where users endorse their signature) bounded with a border color

(like RGB-239, 228, 176) then it would help to identify the exact position of that signature in that image.

2) Adjust the property of signature:

After the previous step a binary image (only black and white) is obtained. After that it is required to locate the exact position of the signature in the image to perform the signature verification, because signature can be anywhere inside this rectangular area. And it can sign in different angles and sizes. Now the first problem is to find the exact position of the signature from the rectangular boundary area and the second problem is to find the angle and size of the signature.

i) Discover the exact position of the signature in the signature box: To solve the first problem a solution has been proposed. The proposed solution is based on the identification of edges of the signature in the signature box. It scan the rectangular area from its four (i.e. top, bottom, left, right) sides. Fig 1 shows the exact position of the signature in the signature box. And after that the actual signature area has been extracted.



Fig 1. Finding the exact position of the signature in signature box

ii) Angular problem solutions: Another important task is that the angular detection of a user signature can change from time to time. A signature can be written in different angles. To compare the signature signed in different angles that is stored in database. The main goal is to change the property of scanned signature such that it can be compared with the sample database signature. Sometime same signature can be written in an angle, and to solve this angular problem some

mathematical formula is used that has been described below.

We have used co-ordinate geometry to find the angle and to rotate the image accordingly. An angular signature which can be described by Fig.2 can be considered. In this picture two points 'a' and 'b' are the two end points of the signature.



Figure 2 - An angular signature

Now we get x_1, y_1 co-ordinates from point 'a' and x_2, y_2 co-ordinates from point 'b'. If we draw a straight line to 'w' and 'h' from point 'a' and 'b' respectively then we can see that the two lines from 'a' and 'b' cuts each other at point 'c'. And now from the co-ordinate geometry, the angle is

$$\tan \theta = \frac{\text{changes of Y}}{\text{changes of X}}$$

$$\therefore \theta = \tan^{-1} \frac{\text{changes of Y}}{\text{changes of X}}$$

Changes of $Y = y_2 - y_1$; changes of $X = x_2 - x_1$

In order to measure the angle properly the angle has been scaled 100 times. Then the image has been rotated by the angle to make it horizontal to the x axis.

iii) Resizing image with database image:

After rotation the signature as the signature size gets enlarged hence resizing of the signature is required before the two signatures get compared.

B .Verification

The signature will be verified after pre-processing. The electronic signature is compared with the existing database signature and if the signature matches then the

application displays the signature is valid otherwise not valid.

4. SYSTEM ARCHITECTURE

System Architecture includes the overall structure of the application and the ways in which that structure provides conceptual integrity for a system. Here the functions implemented for building estimation app, is that allows civil engineers to get the signature from worker through e-signature. The civil engineers can able to update, delete, and insert the worker details. The architecture explains that the civil engineer can login to the building estimation app and from mysql civil engineer can access all the data's like worker coolie detail, update, delete, insert workers name. Fig 3 shows the system architecture of system. The works could be able to put the sign through the e-signature.

A. Electronic signature

Electronic signatures are popular because they are easy to use. Customers can sign documents online with touch screen mobile by using their fingers to trace a handwritten signature onto a document. The downfall of electronic signatures is that they aren't regulated like digital signatures. To make their own standard is based upon each seller, and when they say signatures are secure you have to take their word for it. Also, electronic signatures do not have the secure coding that digital signatures have. That technology is what links the signature to the signer's identity and to the time the document was signed. Fundamentally, electronic signatures are an image placed on the document, but they can't show if someone tampers with the document after it is signed.

The digital equivalent of a handwritten signature or stamped seal, but offering far more inherent security, an electronic signature is intended to solve the problem of tampering and impersonation. Electronic signatures can provide the added assurances of evidence to origin, identity and status of an electronic document, transaction or message, as well as

acknowledging informed consent by the signer.

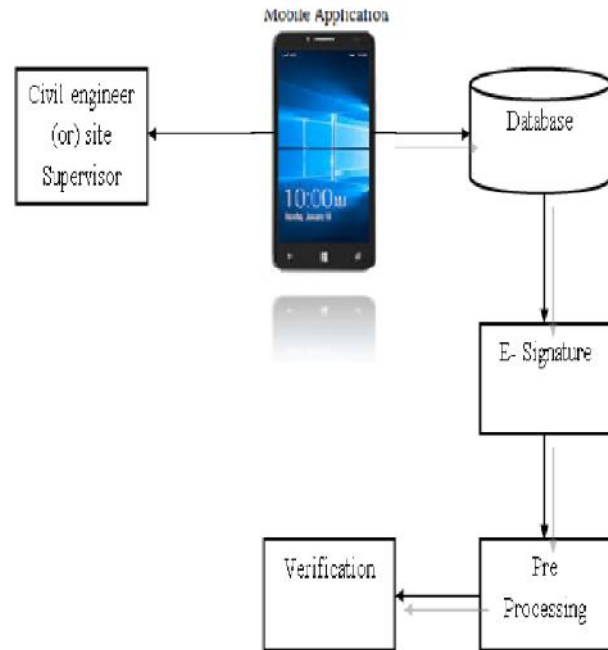


Figure- 3. System architecture of proposed application

B. Modules

Organizations are also increasingly rely on e-signatures to avoid individual cheating. For example, the Internal Revenue Service has identified e-filing and e-signing federal taxes as one way to reduce the \$345 billion gap between claimed and paid taxes. Modules of these applications are,

1. Login module
2. Workers
3. Payment module
4. Estimation module
5. Summary report

1. Login module: The first process is login. In login process the user input his username and password if they have already account, else the user should sign up by inputting their name, password, email id, mobile number. Thus the user can login to their account with their allocated username and password. The signed user can easily view or update the building stock material detail, labor attendance detail, and daily wages detail with the labor electronic signature.

2. Workers: The civil engineer can able to update, delete, and insert their workers name with his designation. Then engineer can easily update the coolie detail either weekly or daily.

3. Payment module: The civil engineer can give the daily wages to their worker in a weekly manner or daily manner. After giving salary to the workers the engineer can get the signature from that worker. So, it is the evidence of that the workers getting the coolie from engineer.

4. Estimation module: Using these estimation module civil engineers can easily calculate the wages for a day or a week. Also, engineers will get a clear idea about the estimation for the particular building.

5. Summary report: Civil engineers want to take the summary report for calculating the profit and loss. So, engineers can easily take the summary report in the form of pdf or word format. Then engineers could take the report as the printout for his future reference. The summary report will be taken either weekly or daily.

CONCLUSION

According to the needs of mobile "Building estimation app", designs and develops the building estimation system based on android platform, maintaining the functions of labor attendance detail and daily wages detail with electronic signature. By using this application engineers can easily update the building details, stock details and also take the summary report for weekly or day wise.

The project has a very fast scope in future. In future the automatic signature verification can also be implementing and it can be widely used in civil engineering field. Its beneficial as it is very time preserving. The main goal is to find an easy way to avoid paper and pen work in construction field. Thus the scope of this system will help us to provide easy access to maintain the daily wages construction detail with electronic signature.

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