

E-Automobile Documentation

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Abstract:-In order to keep up with the pace of the fast moving world, the digitalization is now essential and more than just a need. The correct management and efficient use of the same requires a system which is being designed. The domain of our project is not only embracing the system in a digital way but also establishing a digital system that promotes efficiency of the same. This document explains how the digital documentation of automobile documents can be implemented. The idea behind the project title is to develop a mobile application in order to check the status of validity of license, insurance, PUC, etc., as well as provide the provision to check all the documents in view only mode by entering into the valid account on EAD(E - Automobile Documentation) android application.

Keywords:-Digital document, E – documentation, automobile documentation.

1. INTRODUCTION

The existing system is that one has to carry the hard copy of their Vehicular Documents at all times while travelling. This system consumed a lot of time to check the validity of license, insurance, PUC, etc., also it consumes lot of papers, which does not sound environment friendly. Paper based License, susceptible to mutilation. Cumbersome process of checking especially a mutilated License. Difficult to detect forgeries. Low degree of automation. No centralized database for tracking fine collection. Verification of counterfeit driving License with the central database. Photograph and other particulars can be easily be counterfeited.

Digital technology has become so widespread that it encompasses nearly all aspects of our everyday lives and we can see its use in handheld gadgets, computers, robotics etc. [1]. Digital document management offers far more than a way to replace cumbersome paper with digital files. It's a comprehensive system that converts your company's documents — email, invoices, contracts and other documents — into valuable resources and business intelligence insights [2]. The advantage of going digital is, Reproducibility of information – Flexibility and functionality: easier to store, transmit and manipulate information – Economy: cheaper device and easier to design [3].

2. INTERNET USAGE STATISTICS

The Internet has made distances shorter and the world smaller. The Internet is defined as the worldwide interconnection of individual networks operated by government, industry,

academia, and private parties. Originally the Internet served to interconnect laboratories engaged in government research, and since 1994 it has been expanded to serve millions of users and a multitude of purposes in all parts of the world. The number of internet users has increased tenfold from 1999 to 2013. The first billion was reached in 2005. The second billion was reached in 2010. The third billion was reached in 2014.. The following pie diagram represents the Internet users in the world, where highest share of internet users is from ASIA that is 48.2% and the least share for the same is from Oceania/Australia regions.

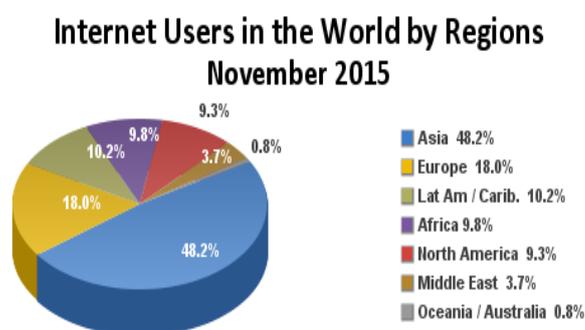


Figure 1. Internet Users in the World. [4]

3. E-AUTOMOBILE DOCUMENTATION

The Automobile documentation currently is a vast process that requires one to carry all the vehicle related documents in a hard copy manner. The E - Automobile Documentation aims at digitalizing this process for increased efficiency in our day to day lives of the same.

3.1 Considered Area of Optimisation

The idea is to develop project in order to check the status of validity of license, insurance, PUC, etc., as well as provide the provision to check the entire documents in view only mode, achieving this by digitalization.

3.2 Maintaining the integrity of the document

The main objective of the 'E-Automobile Documentation' will be to generate a validity status report which the traffic police can view, and validate through their mobile phones or other android portable devices. This application will generate a validity report and vehicle related documents without much of hassle in view only mode. The application also has other features like user can view previous validity records. The other main objective is to provide an efficient encryption algorithm so that security of documents is maintained. Many server side facilities like generation of reports for analyzing statistical information and generation of validity status are also provided.

4. CUSTOMER REQUIREMENTS

- Usage platform: The E – AUTOMOBILE DOCUMENTATION application will run on android OS, and this covers a large number of audience. As the android platform has dominated the smartphone market with a share of 82.8%.
- Accuracy: As the existing system proves to be not much accurate because of manipulation of the hard copy of the documents, our system will prove to produce the accurate documents, by electronic means.
- User interface: The user interface will be User-friendly, simple and easy to understand enough so that anyone can use the application without much of hassle.
- Security: The documents stored will be secured, as it will be encrypted first and then passed on to the server side module and saved onto the database.

5. IMPLEMENTATION DETAILS

The Project will be based in a way to use on an android smartphone, making use of internet. The further technical details and expansion of models and representation of the same are explained as follows.

5.1 No. Of Modules with explanation

Our project consists of following modules as follows:

5.1.1 Client – side module

The client-side module consists of many different modules, performing different functions. First is the Login module which asks user to enter his Id and password to access the application. This module also has registration form asking user to register first when he uses it for the first time after installation of application. The Id and password provided by

user at the time of registration is used to login into the application. The Id of user should be unique so that he can be identified on the database.

5.1.2 User interface module

Second is User interface which allows user to select the option from the menu like status checking, to view the relevant documents, etc., Local storage is used to store the user information at client side to remove the load from server. The respective options will load new user interface performing respective functions.

5.1.3 Encryption module

The encryption module will encrypt the data to provide security using play fair cipher and combination of transposition and substitution cipher. The encrypted data is given to the server side module for decryption. This data is sent over the internet using internet/ Wi-Fi connection to the server-side module.

5.1.4 Server – side module

At the server-side, the user will be first validated by registration process and identified by the unique username. The output of it is given to the decryption module which performs decryption of the data received. Using the decrypted data, the user's account is updated using user database which is maintained in the server database. Status/document generation module helps in generating the reports on the basis of data collected from the database.

5.2 Algorithms

The Algorithms below explain the step by step representation of the implementation and walk through of the app as it will be put to use.

5.2.1 Algorithm for basic system

- Step 1: Start
- Step 2: Login page
- Step 3: Confirm ID and Password combination
- Step 4: Check credentials for login
- Step 5: If valid, allow user login and access to documents
- Step 6: Options for Status check and View documents
- Step 8: Logout
- Step 9: Stop

5.2.2 Algorithm for Status checking

- Step 1: Start
- Step 2: Status display – Valid or Invalid
- Step 3: Options for Logout and Back

Step 4: Stop

5.2.3 Algorithm for Viewing Documents

Step 1: Start

Step 2: Options for viewing License Validity, PUC Validity and Insurance Validity

- License validity
View PDF from database
- PUC Validity
View PDF from database
- Insurance Validity
View PDF from database

Step 3: Options for Logout and Back

Step 4: Stop

5.2.4 Algorithm for RTO Side validation of documents(RTO as Admin login)

Step 1: Start

Step 2: Login with Admin access

Step 3: If valid credentials access granted else go to Step 2.

Step 4: Enter username of requested user

Step 5: If new registrant entry, check all documents validity and create the main records with record validation on App. If entry user already exists in system but not on app, check document validity and update entry on App.

Step 6: If Existing user, Already entered documents can be modified or updated as per validation of documents.

Step 7: Update user to update the app in order to reflect updated entries.

Step 8: Logout

5.3 Flowchart

The flowcharts below explain the basic flow of the controls as the user will put to use the app. There are two flowcharts. The first flowchart explains the flow of the admin login module. The second flowchart explains the flow of the user login module.

5.3.1 Flowchart for Admin login

This flowchart explains the Admin’s flow control. On admin login, the Admin has the privileges to modify the user’s details and update them according to validity.

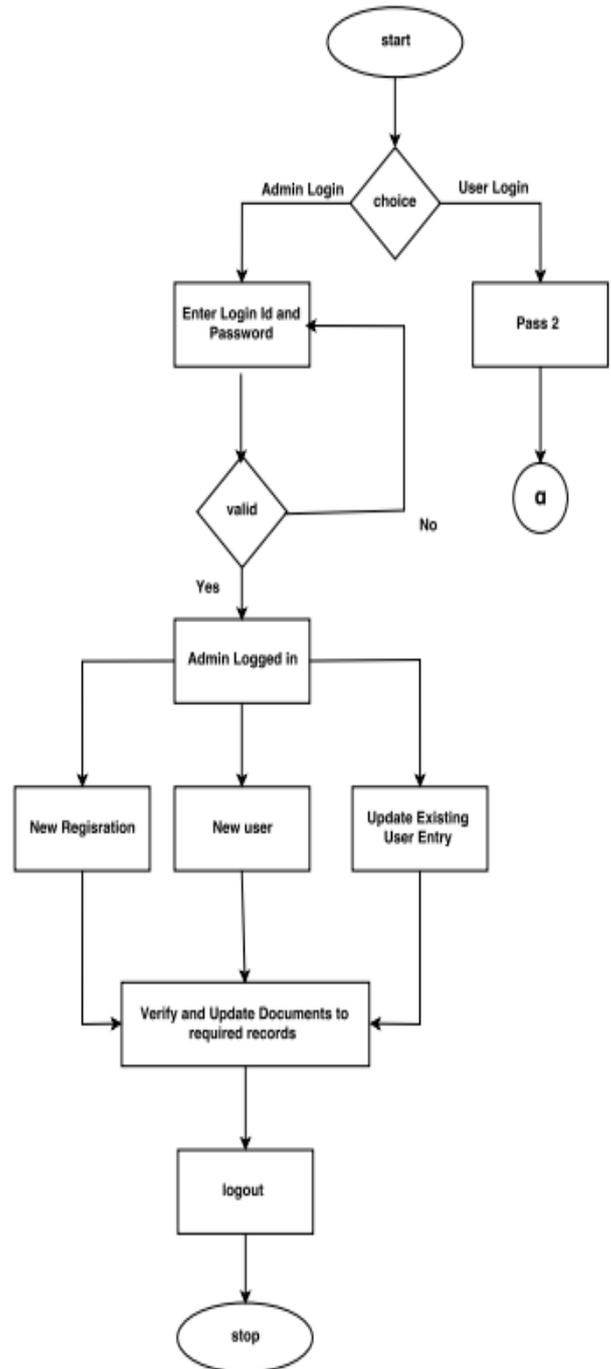


Figure2. Flowchart for Admin Login.

5.3.2 Flowchart for User Login

This flowchart explains the User’s flow control. On user’s login, the user can firstly register himself, else if already a valid user, then can check the validity status of the credentials or can just view the documents in view only mode.

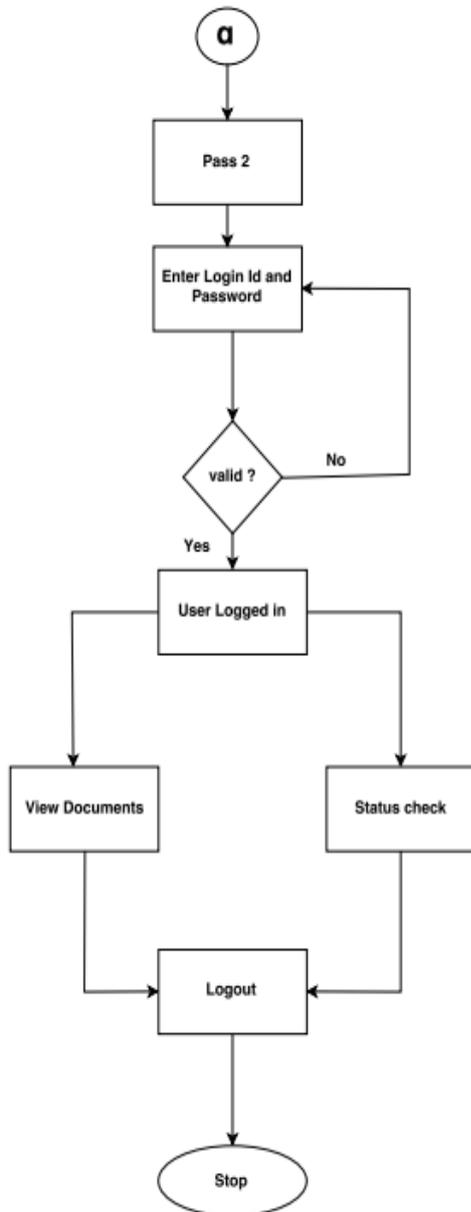


Figure 3. Flowchart for User Login.

5.4 Architecture

Software application architecture is the process of defining a structured solution that meets all of the technical and operational requirements [5].

The system architecture of the ‘E-AUTOMOBILE DOCUMENTATION’ consists of two main modules; they are client-side module and server-side module. The client side module gives the clear idea about the user view. Where the user fills in the registration form giving his personal details. The Server side module receives the encrypted information from the Client side module and performs decryption and storage of that data. This data flows through the internet. The database is maintained at the server side module too, so that any of the user’s details can be retrieved by the Admin in order to modify or update the necessary details of the user.

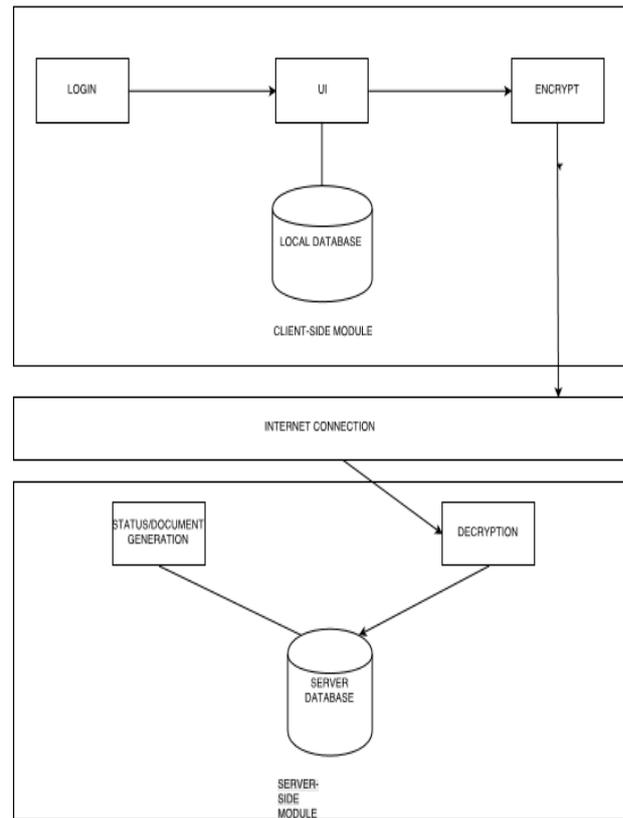


Figure 4. System Architecture.

6. DECLARATION AND AKNOWLEDGEMENTS

We hereby declare that the project synopsis entitled “E – Automobile Documentation” submitted to the “Shah and Anchor Kutchhi Polytechnic”, is a record of an original work done by us under the guidance of Mrs. VaishaliKosamkar, hod (IF), Shah and Anchor Kutchhi Polytechnic, and this project work has not performed the basis for the award of any Degree or diploma/ associate ship / fellowship and similar project if any.

We are grateful to our project guide Mrs. VaishaliKosamkar for her continuous support for the project, and constantly upgrading us with real world scenarios and making us thorough with new technologies and believing in us. Also for giving us a new experience on working under pressure and teaching us professionalism and team work. We would also like to thank Dr. Bhavesh Patel (Principal, Shah and Anchor Kutchhi Polytechnic). And last but not the least we want to thank our friends and family who appreciated us for our work and motivated us.

7. CONCLUSIONS

The E – Automobile Documentation is an app which will be used by large audience. Internet is required only while installing the application or updating it. Even the Wi-Fi availability can serve the purpose of installing application. Thus internet is not required as user can use Wi-Fi at the stations’ non paid area. The application is simple as user just needs to know how to install the application, which is a step by

step procedure given in the manual. Not just that, the application is easy and user-friendly because for generating the validity status or any other documents, he/she has to only enter his/her Id and Password. Validation is quite easy. Security is also taken care of. Powerful encryption and decryption algorithms are used which is mixture of various transposition and substitution ciphers. Needed modifications in the actual algorithms are done to make it more complex and strong.

8. REFERENCES

- [1] P.Chu *Introduction to Digital System Design*. RTL Hardware Design. Chapter 1. http://academic.csuohio.edu/chu_p/rtl/chu_rtl_book/silde/chap01_1.pdf
- [2] <https://www.free-ebooks.net/ebook/digital-systems-design>
- [3] <https://www.docuware.com/document-management-software-solutions/advantage-of-digital-documents>
- [4] <http://www.internetworldstats.com/stats.html>
- [5] <https://msdn.microsoft.com/en-in/library/ee658098.aspx>