

DEVELOPMENT OF MOBILE APPLICATION FOR GOVERNMENT SCHEMES MANAGEMENT

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Abstract

Given the intimidating record of the conventional government well-fare system and also the narrow scope of the private welfare program, we are accounted for a potent mobile-based government subsidy administration system, which will manage the subsidy process proficiently. This project is centred on the construction and execution of a mobile-based repository administration to oust the quality process, consequently throwing away the obstacles associated with the long-established administration process. This project aims at developing a mobile application that provides government schemes like pension schemes, disaster management, the welfare of differently-abled people, agriculture schemes, and Cheyutha schemes using face recognition.

Key words: Fund Management System, Mobile Application, Government Schemes

Introduction

The government Schemes are started to cope with the socio-economic welfare of the citizens of their nation. These schemes play a critical role in solving many demographic problems that afflict society, and hence their awareness could be a must for any concerned resident. Through the pension scheme, the oldsters are provided with a livelihood while they are no more receiving constant wages. In the Cheyutha scheme under the Government of Andhra Pradesh, financial assistance is given to women whose age is above 45 years for 4 years.

The manual practice of the government scheme makes the elderly and differently-abled person visit the offices of the concerned department which is extremely uncomfortable for them and that they lack adequate knowledge of filling the forms for the scheme. They have the pressure of visiting the concerned offices. Due to these issues, they will not be able to get money at the correct time. It might also induce issues like:

1. Robbery as well as forged habits in the process of finance.
2. Loss of materials like paper, files, and so on.
3. Human misconception.

A mobile-based subsidy administration system is constructed to administer government schemes on the customer's as well as officer's ends. The pension management tasks involve the regular update of consumer's information, making inquiries by sending emails from the volunteers to the officer, etc.

An agricultural subsidy helps to decrease the threat of farmers endure from weather, commodities brokers and, disruptions in demand. The mobile-based government management scheme will improve the proficiency of officers in reacting to the requirements of their customers on time.

Related Works

2.1 YSRPK Payment Online

The YSRPK payment online is a mobile application that will distribute pensions to old-age people by using iris recognition details through volunteers. Resources are available in this mobile application to manage these activities:

- Adding new secretariat
- Selecting the village name
- Entering member details
- Viewing reports

These facilities help the beneficiary to check the status of payment through the official website. Through this mobile application, employment opportunities are provided for volunteers who are willing to assist elderly people.[3]

2.2 Crop Insurance

The crop insurance application provides the pliability and applicability to distribute agriculture subsidies to people through the net. It calculates the premium paid for notified crops supported on area, coverage amount, and loan amount just in case of loanee farmer. This application has the subsequent characteristics such as:

- Viewing policy details
- Insurance premium calculator to calculate insurance money before applying
- Checking application status on every step [3]

Schemes

3.1 Food grain Distribution

The differently abled and elderly people who are below the poverty line are aided with food security act by the government of Andhra Pradesh. Through Fair Drop Shop the food grains are delivered to the site of differently abled and old people which helps to support their families. Because of certain circumstances the old-age people are not able to reach the FPS to purchase their goods. On that account, the government has manifested to make sure that the food grains are distributed at their location.

3.2 Development of Women and Children in Rural area

In 1980 the government decided to introduce a scheme to develop the DWCRA scheme which is mainly for women in rural areas under the IRDP(Integrated Rural Development Programs). DWCRA Scheme is one of the successful schemes in Andhra Pradesh. The main perspective of this scheme is to improve the financial and health status of women in rural areas by providing economic accommodation and job opportunities thus making them independent.

3.3 YSR Nethanna Nestham

The handloom sector is an important cottage industry in India. This scheme is mainly developed for the handloom weavers of Andhra Pradesh. The main benefit of this scheme is to provide incentives to the handloom industry. The government will provide rupees 24,000 every year for each handloom weaver family who is

currently running a loom. This scheme has benefitted many handloom weaver especially during the pandemic time.

System Design

A government plan administration system is a solicitation to imbrute the activity for usage of several schemes contributed by the regime. It will oversee the projects related to the schemes contributed by the government. Set-up design states by what means the application will direct the list of activities.

This phase will briefly explain about the design process such as Architectural Design, Interface Design, Data design, Component level Design, and Class Design, etc. The computing tool used for the construction as well as implementation is Java the command language used for compiling mobile-based application, Android Studio and Android Developer for designing mobile applications, Cloud Database, a database service built and accessed through a cloud platform, Android Developer kit, contains required libraries and packages, OpenCV, Computer Vision, Convolution Neural Networks algorithm are used for face recognition [1][2].

4.1 Existing System

In the current existing process of government scheme administration the data regarding volunteer is maintained in files and it is recorded by the Officers. At present, the pensions are being funded by taking fingerprints of the pensioners, However, sometimes the unreadable fingerprints create issues. To avoid disruptions to the people, the government has now decided to start a new biometric recognition procedure under which a resemblance of a people's iris will be used for his/her recognition.



Figure 1. Iris Recognition

Iris recognition is more precise and needs technical hardware. **Face recognition** is less precise but easier to implement on existing hardware. Once executed, both methods are easy to operate. However, practically any camera is effective for **facial recognition** (although a higher quality camera will be more precise). You can't use a regular camera for **iris scanning**, and the implementation can be much more costly.

4.2 Proposed System

The outcome proceeding from the existing system in the government management include iris recognition and several individuals took part in the maintenance procedure. An improved mobile-based application developed the eradication of the defects of an advanced system. In this advanced system, facial recognition is utilized because it neglects the time and cost required for iris scanning application.

In the proposed system, a convolution neural network algorithm will be used for facial recognition [1][2]

Face recognition is the system of verifying and detecting the faces of a person. It captures, examines, and compares format based on the person's facial features. The facial recognition method becomes a common element for identification nowadays. It is utilizing in everything around us including banking, unlocking the phones, education, government solutions, and business. People, mainly the young generations depend on a biometric system more than the traditional process. Governments are also familiar with this problem and acquire this system for their national scheme. There are two principles for the face recognition application.

1. Geometric: It depends on the geometrical relation between facial indication or other terms the dimensional layout of facial particulars. That means that the main geometrical particulars of the face like nose, eyes, and

mouth are first detected and then faces are categorized based on different geometrical intervals and angles between facial features.

2. Photometric stereo: It is utilized to retrieve the appearance of a thing from several images absorbed under various lighting circumstances. The appearance of the retrieved thing is explained by an inclined map, which is constructed in an array of the surface normal.

Face detection contains different image windows into two categories; one consists of faces (turning the background). It is hard because although similarities exist within the faces, they can differ substantially in terms of age, facial expression, and skin colour.

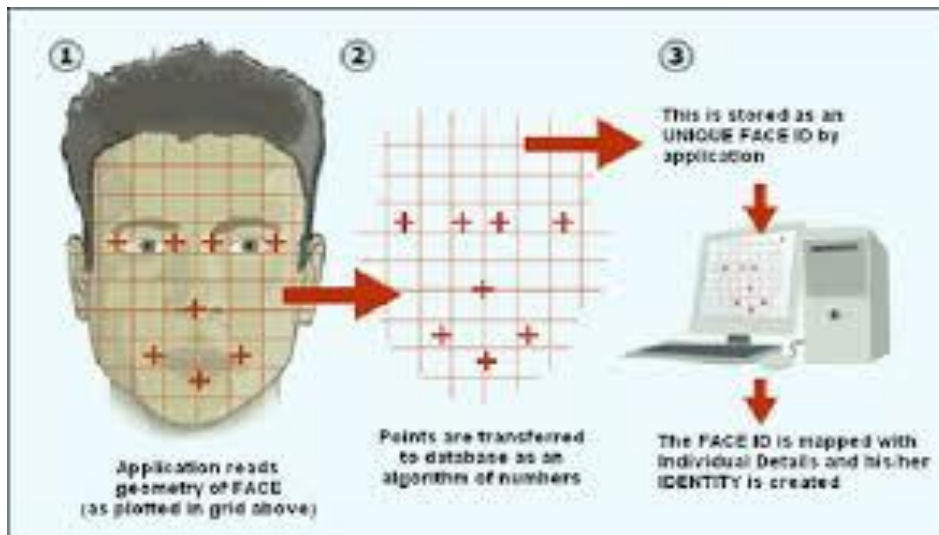


Figure 2. Face Detection

The face detection system can be classified into the following methods:-

1. Pre-Processing: To minimize the changeability in the faces, the images are treated before they are provided into the network. All practical samples that are the face images are acquired by the department of cropping. All the cropped images are then rectified for lighting through quality algorithms.

2. Categorization: Neural networks are executed to categorize the images by providing instructions on these samples. We use both our execution of the Matlab and the neural network toolkit for this work. Several network arrangements are tested with the results.

3. Determination: The instructed neural network is then utilized to look for the faces in an image. The localize and extract the face detection of the user.

The advantages of using facial recognition are:

1. No one can copy your unique facial features
2. Less expensive because you can use any camera
3. Touchless Safe and secure
4. Easy to integrate
5. The automated time tracking system

UI & UX Design

User Interface mainly focuses on looks and style. The UI design is designed in such a way so that it pleases the users. The UI design creates useful interfaces for the users. The UI normally comes in three formats. They are Graphical User Interfaces(GUIs), Voice Control Interfaces(VUIs) and Gesture based Interfaces. In GUI the user interacts with the visual representation for example the computer desktop. In VUI the user interacts through

their voices for example smart assistance like Siri, Alexa. In Gesture based Interfaces the user interacts through 3D design for instance Virtual Reality (VR) game. This system is interactive so that it will be helpful for the users. The user can even query using help option which is provided in the application.

User Experience design aims at providing quality experience for the users. It encompasses a person's approach of practicality, handiness and productivity. UX is designed in such a way so that it provides value to the user. UX design is user oriented.

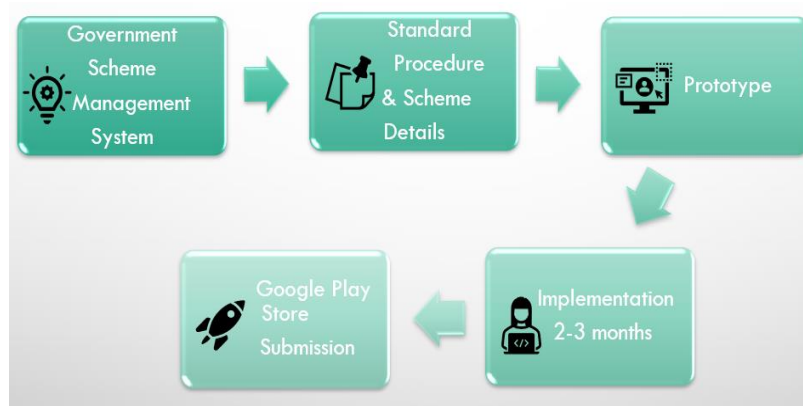
Implementation

This segment concentrates on providing complete working of the Government scheme management system. It discourse about the functioning of the mobile application-based Government Scheme Management System. It incorporates connection between modules and the role of each page.

- ❖ Welcome Page: This page greets the volunteers to the app and the volunteers are provided with two options namely the login and signup.
- ❖ Signup: This page allows the volunteers to create an account using their Aadhar card number and they need to upload their photo.
- ❖ Login: It allows authenticated volunteers to enter into the application and accesses the registered people's accounts and other details using face recognition. They need to enter the password given to them to login into the application.
- ❖ Home: The home page contains the links to other pages. It contains many options such as search, menu, edit, help, etc.
- ❖ Menu: It displays various options such as scheme details, update, logout, etc. It guides the user to move to the specified pages.
- ❖ View Eligibility: This page contains the list of the schemes available with vital information about each eligible person.
- ❖ People Profile: It contains the details of the payee and the volunteers can edit and update the details of the payee.
- ❖ Volunteer Profile: This page contains the details of the Volunteers. The volunteers can edit and update their details on this page.
- ❖ Schemes Page: This page contains various information about the schemes. It contains the count of pensioners related to that scheme.
- ❖ Payment Record: This page keeps a record of the payment details. It contains the name, id, scheme, and mobile number of the collector.
- ❖ Payment: It contains the camera icon to capture the image of the beneficiary and compare it with the image in the database. After the image is verified it leads to payment.
- ❖ Reports: It includes the overall information of the recipient and the payment. It holds information such as paid, unpaid, to be paid, etc.
- ❖ Notifications: It notifies the volunteers about the new features, schemes newly introduced, and enhancement.
- ❖ Help: It is used to lead the volunteer about the usage of the application.
- ❖ Logout: The volunteer can log out from the application once his/her work is completed.

Solution Architecture

In solution architecture, we have five different phases namely plan, information gathering, design, implementation and deployment. Plan is the first stage of software development lifecycle. It begins with a great idea. The government scheme management system idea should be precisely thought over for implementation. In information gathering phase we gather all information related to our idea such as schemes, funds, etc. A feasibility study is done in this segment. The visual representation of the project is done in design stage. The implementation stage is an important part of software development lifecycle because the actual implementation of the project is done here. Android Studio and Android Development Tools is used for the implementation of mobile application. Deployment and maintenance is the final stage of software development lifecycle. The final product is directly introduced to the customers in this phase. The product will be updated regularly depending on the feedback from the customers.



Conclusion

This application plays a vital role in connecting people with government beneficiary schemes through the help of volunteers. On successful implementation, the system will overcome the drawbacks spotted in the current system as previously stated. It is necessary to know that for a mobile-based system to function productively;

Quality domain.

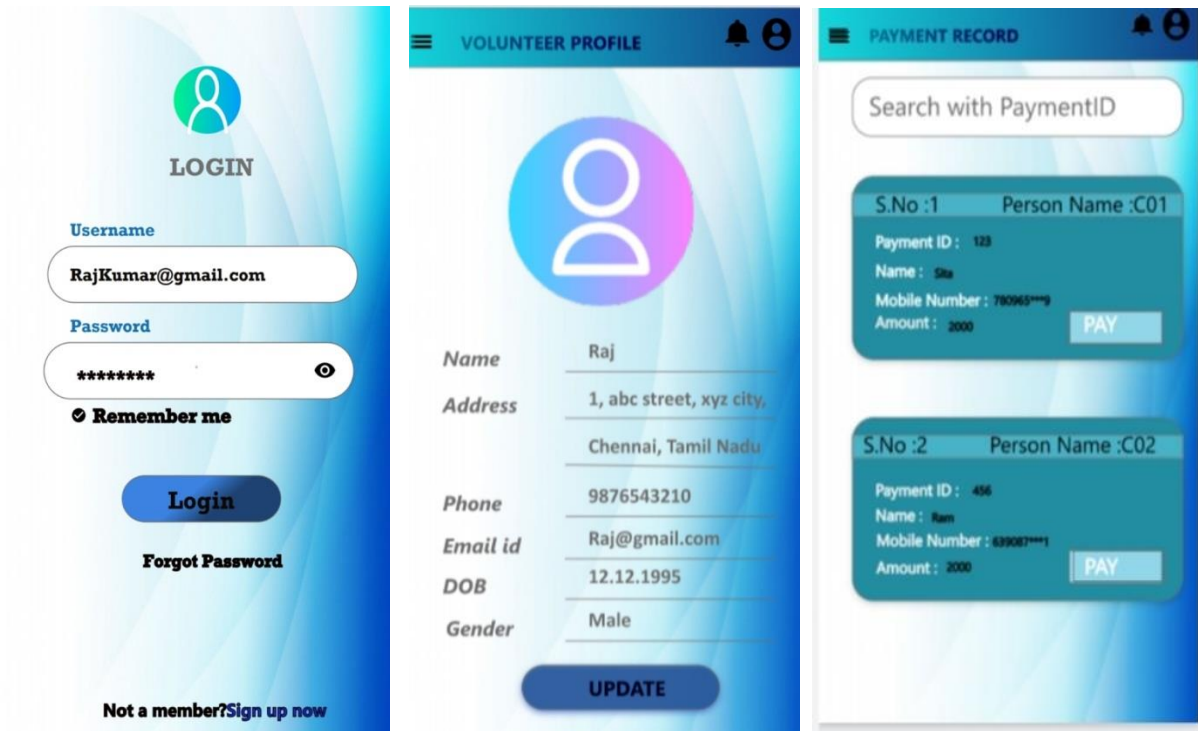
Better conservative techniques.

Welfare management.

Once the establishment of our application is done, there is a necessity for getting the feedback from the user. We have to consider some of the following features before establishing.

- The right and effectual utilization of the set-up by the organization is done only through volunteers.
- Unofficial and unskilled person's must be denied from using this new system by the management. Thus it minimizes the threat of destruction of the system from malicious attacks. This system neglects forged processes by any invaders who might engage in the system

Result



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