

Software Requirement Specification

for

Angadi Kerala Application

Prepared by

CIVIL SUPPLIES AND CONSUMER AFFAIRS DEPARTMENT

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1. Introduction

The State Government has established a 'Centre for Price Research Kerala' under GO (Rt) No. 173/2022/F & CS dated 18.05.2022 to collect and analyse the prices of 13 essential commodities at the State level in line with the Union Government's 'Price Monitoring Cell' program. The Centre for Price Research Kerala (CPRK) is also entrusted with making recommendations to the State Government and other concerned agencies to lay down the rules and measures to control the prices of essential commodities in the market to protect the 'consumer rights'.

1.1 Purpose

The Centre For Price Research Kerala under the department is currently having a Google Form-based Price Collection Register, which doesn't have any user-specific logins and instant report generation options. To make the process user-friendly and to authenticate the data entered on a real-time basis, the department would like to switch over to a robust android application that is supposed to provide unique user logins and login-specific report generation.

1.2 Intended Audience and Reading Suggestions

The audience in this application is an Open and Closed User Group (CUG) consisting of 3 tiers of Food & Civil Supplies Department Officials, 14 Data Entry Operators, and the General Public (Sellers & Buyers).

1.3 Acronyms

- Ø User: An active employee with a valid username and password and with appropriate rights to perform different kinds of operations in OIA (Angadi Kerala App).
- Ø Angadi Kerala App: Online Price Collection Mobile Application. .
- Ø SD : Software Developer.
- Ø SDC : State Data Center.

- Ø UAT: User Acceptance Test.
- Ø CCS : Commissioner of Civil Supplies,
- Ø SO : Statistical officer
- Ø RO : Research Officer
- Ø RA : Research Assistant
- Ø DEO : Data Entry Operator

1.4 Project Scope

We use the application to gather daily prices of 13 essential commodities from five markets within each Taluk across 14 districts in the State. Additionally, the application will provide farmers with the option of selling directly through the app. As well as providing a selling module, it allows the public to view the listed items and contact the farmers to make a purchase. The APP shall provide a facility for the sellers and the buyers to choose the geographical area to sell as well as to buy. It comprises functional and non-functional requirements, which, when taken together, describe the entire required system. The project can potentially be integrated with other departmental web portals in the future. A web platform is needed at the Department level for approving the entered values and also needs to have a public dashboard facility for displaying and analyzing the approved data. The same web portal may be integrated with the Department website as a separate module through web service.

1.5 Intended Audience and Reading Suggestion

A Closed User Group (CUG) of 3 tiers of Food & Civil Supplies Department officials, 14 Designated Data Entry Operators, and the General Public(Sellers & Buyers) is the target market for this application.

2. Proposal

2.1 Product Perspective

A mobile application named “Angadi Kerala App” is a comprehensive platform to provide various functionalities based on price data collected on a daily basis by Data Entry Operators and includes various analytical reports with overview dashboards. The system shall provide information on data entry and report generation to all privileged authorities through a separate login. The first-level approving authority may have the facility to edit and verify the entered values, As the second-level authority(Statistical Officer) shall also have the facilities to edit and Approve the verified values. The higher authorities shall be able to monitor the data collected by DEOs which is approved by the Statistical Officer and thereby ensuring authentic data for Price analysis. The system receives real-time location information of markets from where the price is entered which ensures the authenticity of the data collected. The system shall be able to enter and edit data, summary reports, and alerts generated during non-attainment of targeted shops per day as demanded by the Centre For Price Research Kerala. There shall be a Master Admin login to

manage all the activities for all levels of Officers and shall have the facility to add/delete users, roles to be managed, and credentials to be created/removed.

Product Features

The Online Mobile Application (Angadi Kerala App) shall be accessible through an Android-based Mobile.

The key functionalities provided in the mobile application are listed below:

2.2 Functionalities

- a. **Login** - Set of credentials generated through Admin login used to authenticate a user. On successful verification of entered details, the user shall be allowed to access mobile app features. As of now 14 Data entry Operators, one Verifier, one Approver, CCS and a Super Admin.
- b. **Home View** - The application shall be capable of providing role based login facility to the users. Depending upon the allowed roles, users shall be presented with features specific to the log-in user. The Home View shall also provide a glance at previous Price data collection details like when the last price data collection was done, how many data entry have been completed etc
- c. **Dynamic Menu** - Organizes the functionalities to make it easy for the user to view only such functionalities of their interest/ as per the customization done by Super Admin Login.
- d. **Overall price collection View** - Provides overall statistics of Data collected by each DEO's for each Taluk.

2.2.1 Login

There shall be a facility for login in for each assigned user with provided credentials from the Department to access the Mobile Application (ANGADI KERALA)

Inputs

The user shall log in into Angadi Kerala App using predefined credentials generated through Master Admin

- User Id (shall be an official email id/Username)
- Password

2.2.1.1 Functionalities

The following sequence of processes occur when a user attempts to login into the Angadi Kerala app

- The user id shall be matched against the password to validate the authenticity of the user. On authentication, the system shall verify whether the user is active.
- If the user is authenticated and active, the Angadi Kerala APP shall load all the modules and menus that are permitted to the roles held by the user.
- The system shall validate continuous incorrect login attempts due to incorrect password and locks the user account for a configured duration.

2.2.1.2 Outputs

If the authentication of the user credentials is successful, the Angadi Kerala App loads the home page of the default application assigned to the default role held by the user; otherwise, the user is alerted to verify the user id and password entered.

2.2.1.3 Change Password

The system shall provide the facility to change the password option for the user and also the MASTER Admin.

2.2.1.3.1 Inputs

It shall be possible to change a user's password by entering the following details

- Current Password
- New Password
- Re-enter New Password

Forgot Username/Password facility shall need on the login page.

2.2.1.3.2 Functionalities

The entered password shall be matched against the reentered password and only if they match, the new password is saved. Otherwise, the user is alerted to enter the correct password. To improve security, the new password shall be validated to have a minimum length of 8 characters and the presence of an upper case, lower case, and special character or digits.

2.2.1.3.3 Outputs

If successful,

- A status message indicating a successful password change shall be displayed.

If unsuccessful,

- Error details shall be alerted.

2.2.1.4 Forgot Password

There shall be a facility to recover the forgotten password of ANGADI KERALA APP users.

2.2.1.4.1 Inputs

It shall be possible to recover the forgotten password of a user by entering the following details,

- User name
- Captcha

2.2.1.4.2 Functionalities

An OTP shall be sent to the registered user's mobile number. After verifying the OTP, the user shall prompt to enter a new password of the entered user name. After the successful password change user can log in to the application using a new password.

2.2.1.4.3 Outputs

If successful,

- A status message indicating a successful password change shall be displayed.

If unsuccessful,

- Error details shall be alerted.

2.2.1.5 Forgot Username

There shall be the facility to recover the forgotten username of ANGADI KERALA APP users.

2.2.1.5.1 Inputs

It shall be possible to recover the forgotten username of a user by entering the following details,

- Registered mobile number
- Captcha

2.2.1.5.2 Functionalities

An OTP shall be sent to the registered user's mobile number. After verifying the OTP, the application shall display the registered username corresponding to the mobile number.

2.2.1.5.3 Outputs

If successful,

- Username shall be displayed corresponding to the registered mobile number.

If unsuccessful,

- Error details shall be alerted.

2.2.1.6 Change Mobile number

There shall be a facility to change the mobile number of Angadi Kerala App users.

2.2.1.6.1 Inputs

It shall be possible to change the mobile number of a user by entering the following details,

- New mobile number
- Captcha

2.2.1.6.2 Functionalities

After the verification, an OTP shall be sent to the new mobile number. After verifying the OTP, the application shall set the new mobile number of the logged-in user.

2.2.1.6.3 Outputs

If successful,

- A status message indicating successful mobile change shall be displayed.

If unsuccessful,

- Error details shall be alerted.

2.2.2 Functional Requirement CCS

MASTER ADMIN with all Privileges and shall have the facility to view all the activities done by any level user and also to change the Role Post, Role Management etc as and when required.

2.2.3 Functional Requirement SO

Login > Edit & Approve Verified Data by RO > Publishing Data

All the verified values by RO to be approved and verified data by RO shall be edited if required

2.2.4 Functional Requirement RO

Login > Edit Data > Verify & Submitting Data for Approval

All the data entered by DEO's shall be segregated and the same shall be listed here. Provision to apply filters for District or Taluk wise, Wholesale and retail shop, if required. There shall be three facility for RO to Verify, Edit and Reject.

2.2.5 Functional Requirement DEO

Login > Entering Data from Concerned Market > Submitting Data for Approval to RO

All the DEO's Login have the facility to enter the value as per selection defined by Higher Authority. All fields shall be mandatory. Name, Date & Time, Location etc shall be autopopulated from Database.

2.3 System Usability

It is the extent to which users can access the functionalities with effectiveness, efficiency, and satisfaction to achieve specific goals. Following are the main features necessary for ease of use

- The relevant services are available to all logins of the application.
- A user-friendly interactive environment for viewing statistics, various reports, login details etc.
- To ease of navigation in moving from page to page.
- The provision of standard fonts.
- The UI should be compatible for web browsers, video walls and mobile displays.

2.4 Design and Implementation Constraints

- The Mobile Application should be available in the versions such as Android / and also shall be accessed through Browsers from users' Mobile
- The application should be compatible with multiple resolutions, fonts & screen sizes.
- The application requires Geo tagging of Markets for Real-time monitoring of the authenticity of Data collected. Logins shall be restricted to respective Geo Locations
- The application should be Multilingual.
- If the login is incorrect, the program must show an alert message to the user about the incorrect login.
- Provide the possible Information/Warning/Error using alert

- Users can easily move from one screen to another screen
- Enable the mobile dictionary to enter the values
- Must validate the values like E-Mail ID, Decimal, Real values etc.
- Users have to know the status information and alerting information.
- Data should be stored in the local database when SMS/GPRS is not activated.
- Once SMS/GPRS is connected, the local data must be sent the server from the local database.
- Application updates through GPRS

2.4.1 Hosting, Annual Maintenance

The Company shall host the ANGADI KERALA mobile Application in the server space and domain provided by the Commissionerate of Civil Supplies. The Company shall provide Annual maintenance and Technical support for the Mobile Application.

To Be Done By SI(Startup company selected)

1. Design and Development of a Mobile Application - ANGADI KERALA Mobile Application
2. Hosting of the mobile application in the server space(SDC) is arranged by the Department.
3. Training and hand-holding to the users of the project.
4. Procuring required Certification of the mobile application if required.
5. Security Testing of the software by any Cert-In empaneled agency(Payment will be borne by the Statistical Division of the Department)
6. Annual Maintenance and Technical support from the signing of the MoU.
7. Any Technical issue/error addressed, shall be resolved within 8 Working hours, if the time limit exceeds, prior permission from the department shall be obtained for the relaxation in penalization.

Task To Be Done By Commissionerate Of Civil Supplies (Statistical Division)

1. Arrangements for Server space/infrastructure in the State Data Center for the successful implementation of the project.
2. Should provide all relevant data needed for developing and maintaining the Mobile Application from time to time to by the Company.
3. Assign personnel from of department as Nodal Officer for interacting with the Company.

2.5 User Documentation

There shall be Standard Operational Procedure (SOP) & User Manuals at different levels of users. Soft copies of the documentation to be handed over to the department when the application is delivered.

2.5.1 Training and Support by Startup

The training needs to be conducted for making the software familiar and user-friendly to officials as part of the change management program. Training needs to be conducted to officials selected by the Commissionerate of Civil Supplies (Statistical Division). The department will provide a proper infrastructure facility for conducting training programs. Commissionerate of Civil Supplies will organize training programs and communicate with its officials, the participation of officials is the sole authority of the Commissionerate of Civil Supplies (Statistical Division). A nodal officer from the Commissionerate of Civil Supplies (Statistical Division) will coordinate and communicate with the Company regarding its requirement for training and support.

3. System Features

The major service provided by the proposed software application is to enable the current Google Form-based Price Collection Module to a user-friendly unique login-based mobile platform.

The Model of the field sequence in the current Google Form Online Price Collection Form is as follows:

Price Collection Report		To be done
1.	Name of DEO	Auto registration through Admin
2.	Date and time of Data Collection	Auto Populated
3.	District	Dropdown
4.	Taluk	Dropdown
5.	Market	Dropdown
6.	Shop Type	Wholesale/ Retail
7.	Name Of Shop	To be entered once and shall be fetched from DB

8. Select Name Of Commodity: Following list for each Commodity		
Name of Commodity (Per Kg)	Price in Rs (Premium Quality)	Price in Rs (Average quality)
Green gram		
Black gram		
Bengal gram		
Red gram/Lubia		
Tur dal		
Chillies		
Coriander		
Sugar		
Jaya Rice		

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Kuruva Rice		
Raw Rice		
Matta Rice		
Coconut Oil (Per Litre)		
9.	Remarks	

4. Other Non-functional Requirements

4.1 Software Security

The Mobile Application shall undergo a security Audit to be hosted in State Data Center. The auditing shall be done through CERT-IN empaneled agency only. The startup company shall do the security Audit by itself and the payment for the audit will be borne by the Department (Statistical Division). Time-to-time updation on Mobile Applications shall be done by the startup with prior permission from the Department.

4.1.1 Audit Trial

The database should have inbuilt mechanisms for enforcing the security and integrity of the data. Auditing of transactions should be provided. Sensitive information should have transaction logs, which will capture the pre-image and post-image of data modifications. Information regarding the users carrying out these sensitive transactions should be captured to ensure accountability at every process level.

4.1.2 Log Maintenance

The logs generated by the software modules shall be kept for retrospective and recovery activities based on the period required by the Department. Log generation shall be set at data handling levels including application server, database server, automation scripts etc.

4.2 Availability

Critical components of the system must provide adequate redundancy to ensure high availability of all the modules in the applications. Designing for availability assumes that systems will fail, and therefore the systems must be configured to mask and recover from component or server failures with the minimum application outage time.

4.3 Data Integrity

Data integrity is the ability to maintain and assure the accuracy and consistency of data over the Entire life cycle. For this data must be stored securely to prevent unauthenticated access, data Corruption or illegal modification. Data security measures like encryption, backup, access control, and validation rules should be adapted.

4.4 Portability

Portability is one of the key concepts of high-level programming. Portability is the software code base feature to be able to reuse the existing code instead of creating new code when moving software from one environment to another. The pre-requirement for portability is the generalized abstraction between the application logic and system interfaces. When one is targeting several platforms with the same application, portability is the key issue for development cost reduction. Hence the application developed should be platform-independent.

4.5 Interoperability

Interoperability is the capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units. In the proposed system, services would be implemented to achieve this. Service is spearheading the interoperability initiative in the market.

4.6 User Interfaces

UI interface of the application is compatible with Android Based Mobile devices during development it should be ensured that the features will work in a similar way in mentioned kind of Mobile devices, but due to non-common standards followed by the devices it might be possible that some UI features work differently in different devices.

4.7 Software Usability

System usability is the extent to which users can access the functionalities with effectiveness, efficiency, and satisfaction to achieve specific goals.

The following are the main features necessary for ease of use

- The relevant services are available to all stakeholders of the application.
- A user-friendly interactive environment for easy mapping and tracking of Data values entered, alerts, messages etc.
- To ease of navigation in moving from page to page.
- The provision of standard fonts.
- The UI for the website/webpage should be compatible with web browsers, video walls, and mobile displays.

4.8 Exception Handling

The application modules shall be implemented with exception-handling mechanisms to handle deviations in input, output, or business logic criteria to prevent the mobile app from crashing and stop functioning. Exception handling shall be included at all levels of data handling in the application until the database level for the smooth working of the software system.

4.9 Application Interfaces

The ANGADI KERALA Mobile App shall be integrated with the external system of the Department's/Govt Applications in the future provided API access is allowed, to avoid duplication of functionalities and data fetching for processing. The application shall provide the facility to interface with other mobile Application SMS gateway for sending alerts and messages. Mail Server for sending emails Map Service for plotting the GPS/IRNSS data (if needed). Web services Integration with GOI/GOK application in future

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4.10 Duration of Project

The estimated period for completion of the ANGADI KERALA mobile application project is 20th May 2023. With the Company shall maintain and provide technical support for the software for one year from the commencement of the Project.

TERMS AND CONDITIONS

1. A work order may be issued after the approval of the project proposal.
2. Any taxes imposed by Govt. from time to time are applicable and will be charged extra at prevalent rates to the proposed amount.
3. A MoU shall be executed between the Commissionerate of Civil Supplies (Statistical Division) and the SI (Startup Company) for the system's design, development, and maintenance.
4. The work shall commence as per the plan and schedule mentioned in the MoU.

Affairs

Sd/-
Commissioner of Civil Supplies and Consumer
Approved for Issue

Rationing Controller

Signed by

Saheer.t

Date: 03-04-2023 14:48:49