System Requirement Specifications (SRS)

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2 Problem Statement

Today, there is a virus problem in the earth and all countries in the risk of that. The COVID-19 virus effects older people much. So it shows up that the older people must be in quarantine to decrease effects of virus catch. But if they are away of social life then how can they survive? The solution must be in a software which communicate with other people, markets, hospitals, police and etc to meet the needs of older people.

3 Overview

3.1 Background

The earth is under danger of virus which is called COVID-19 virus or with other name corona virus. The virus is effecting all people in the world and danger of virus grows so fast. In these days, looking at researches of deaths we see that older people which are over 65 years old caught effect of virus is most. It shows that they have to stay home under quarantine and if they need something at outdoor, the government or other younger people may meet the needs for them. To save older people life and there is needed a communication tool between older people and outdoor people without touching or face-to-face.
It is easy to develop a software for older people that they will use it and they will meet the needs using the technology.

3.2 Overall Description

To think on old people, what do they have to use technology easy we can see that mobile technology devices can be used for them. But for over 65 years old people it might not be useful to use an mobile application directly. So first of all, I assume that all older people have Android, iOS or Windows smart technology device as mobile phone.

There must be an mobile application with too easy usage front-end development. That front-end development for users is going to be look like as dialing phone keyboard style. Only main page of application and main frame has 9 or 10 buttons. Each button has its specific information as image in front-end about what does it do. Usage is simple, just push on buttons. Also if the user can not see the buttons well then it can talk to application for to use buttons with voice commands.

4 Investigation & Analysis Methodology

4.1 System Investigation

The communication of older people’s application requires to work in different operating systems as a mobile application.

To use in different operating systems there is needed a research for which of these operating systems used much because to develop in hybrid system or native system. We see that in Turkey most of people use iOS and Android operating systems. So to use an hybrid platform for that simple application can be better choice to maintain. When we look at the hybrid platforms, the Flutter framework of Dart programming language which is supported by Google is rising for us.
The mobile application doesn’t need a large database operations. If its needed then Firebase database can be used. Google’s speech to text API and database connection for Firebase are base machines of our application to communicate with user.

4.2 Analysis Methodology

4.2.1 Feasibility study and requirements elicitation

Organize the development for teams, requirements elicitation must be determined and feasibility study must be done to draw the lines of borders. Users are older people and they will use the software in easily. How to make an application usage simple? If we think on that we see speech to text APIs are easy and useful at least for older people who are over 65 years. If user or older person wants an help then it will open the mobile application and it will see some buttons. All buttons are not in same size and colors. The biggest button is going to be speech to text button. If user doesn't see the smaller buttons then he/she will push the biggest button and will listen the choices what kind of available services are exist to him/her.

After listening the selections then application will listen to him/her selection and become what he/she said.

4.2.2 System analysis and requirements specification

4.2.2.1 Perform an analysis of the problem using object-oriented techniques

An external view of the enterprise model of the user communication including user guide, user current location, and Turkey government emergency services' informations will be developed using Unified Modeling Language (UML). This System Requirement Specifications documents will form part of the documentation for the project. Some desired features of the new system include:

- The ability to search using voice on-line
- Provide location of user on-line
- Evaluate often calls
- Inform authorized government services
- Allow to add new services

4.2.2.2 Scope and Limitations

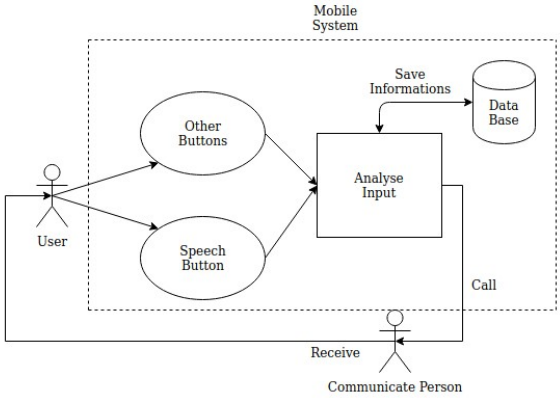
Analysis methodology will involve business analysis, requirement analysis, data analysis, process analysis, (web) and application architecture:

- Business analysis – State the business rules, business system interfaces, business function, business ownership, sponsorship and associated project budget requirement
- Requirement analysis – System I/O description, user requirement definition, functional and security requirement
- Data analysis – Involve data collection process, data validation, data storage, manipulation and retrieval
- Process analysis – Data/process flow analysis, process decomposition and system interfaces
- Application architecture – Analyze application information structure, usability, user interface design, interaction and application implementation.

4.2.3 Object-oriented design using UML

A detailed object-oriented design for the communication system will be developed. UML will be used again for the graphical representation and documentation of the design. The system will primarily concern itself with the registration process. At its core, an old person will select a mobile based buttons that will be processed in near real time by the host Firebase back-end system. In addition, the system will allow users to check closest emergency services, most called service and provide speech ability. The system will be secured with a user's e-Devlet entry informations as identification number and password.

4.2.3.1 Use Case 1



4.2.4 Prototyping

The Evolutionary Prototyping method will be used to implement a limited and functional prototype for the communicate system. The prototype will be working in database evolution for all communications are stored and feedbacks to user looking at its history. It will include mobile-based buttons as an end-user interface with the Firebase database. The prototype will be presented to the implementation team.

5 Constraints

5.1 Scalability

The Communication system does not scale well to increasing system demands. System's underlying operating system was not designed to handle and resolve concurrent transactions. Error handling is also limited to few anticipated or common errors.

5.2 Data and Function Mapping

A new function added to the database can be readily mapped to the existing Communication system.
For example, a new call added to the database will not require a source code change and recompilation of the main Communication program.

5.3 Proprietary hardware and software

Communication system requires proprietary hardware and software from Smart Phone Technology in order to be operational.

5.4 Batch updates vs. (close) Real-time updates

There is real-time update of mainframe database location system data for transactions thru the Communication system. Each transaction records are applied in some minutes via a scheduled job.

5.5 Project Schedule

There is a two-month time frame to implement a production system of an online communication system from project commencement in time for June 2020 registration.

6 Operational Requirements

6.1 Help Desk Support

System users have a 24x7 access to telephone assistance for questions that are technical in nature, such as, slow or sluggish system response time, application errors, system downtime inquiries, account lock-out assistance, etc.

6.2 Application Services and Technical support

Programmers and application developers will have access to update source code to address bugs or system enhancements as deemed necessary. Database Administrator and network support is also required to maintain a 24x7 system uptime.

6.3 Administration Features

System security and access levels are provided in the online system. There are varying levels of system access and functional authority. Each user's access is limited to his/her own call records. Only authorized system administrator(s) has access to all user call records.

6.4 System Interface independent of Communication

The Communication system will remain operational and its functionality will be complementary but independent from the online call system. At any one time, users may use either the Communication system or the online system only, but not both.
The online system will be operational even if the Communication system is offline and vice-versa.

6.5 System hardware fail over and routine back up

Computer operations center will handle system hardware tasks such as data tape back-up, hardware maintenance, fail over, scheduled system patches and maintenance.

6.6 Audit Trail

System audit trails are inherent part of all user calls. Among others, all transaction records will capture what action was taken, when (time-stamp) the transaction occurred and who made the transaction.

7 Functional Requirements

The call system is "self-service style" system that shall initially address the user call needs.

7.1 Old Person Self-service

Old person can make changes to his/her call records that are about to be call for in the future. All system interfaces are based in accepted industry standards for to iOS and Android smart phones. Among others the online communication system will have the following functionalities:

7.1.1 Personal Profile

- Old Person Address
- Old Person Location
- Call Numbers
- Stops

7.1.2 Calls

- Call Status
- Passed Call Status
- User's Call History
- Call for Government Emergency Services
- Add or remove a call
- Call for Closest Shopping Centers

7.1.3 Guidebook

- View past calls which are in guidebook
- View non-official calls of guidebook
- Keep a cumulative count of calls finished
- Display social media friends' numbers

7.1.4 Call Assistance

Stop a call request for error conditions:

- Calls have scheduling conflict
- Call does not exist
- Insufficient balance or no package to make a call

8 Input Requirements

8.1 Old Person identifier key and user access

Each old person is assigned a unique identifier upon registration to the e-Devlet. The old person must know this. This identifying key maps to all his/her registration record information in the main registration system. Registered old people have their online registration accounts also enabled. Such account maybe disabled after die.

8.2 Buttons

Buttons and registration of calls will be made available through the system. It will be show up to the old people call in records prior to the next call to assist the old person's call plans.

8.3 Action Calls

All other action (transaction) such as call add/remove will be available online for to assist users. These actions will be similar to Communication system' transaction call if appropriate.
Speech record of old person will be saved when pushed the biggest button.

9 Process Requirements

The following are among the inherent requirements that the online registration system must be able to handle.

9.1 Database transaction

The system must be able to send, receive and trigger transaction to the database system.

9.2 Data integrity

Commit transactions that are completed and/or rollback unfinished or time-out transactions.

9.3 Data validation

Data error from the user's end and from the back-end database-processing end must be gracefully handled. There will be data validation and error-handling routines as part of the online call register system.

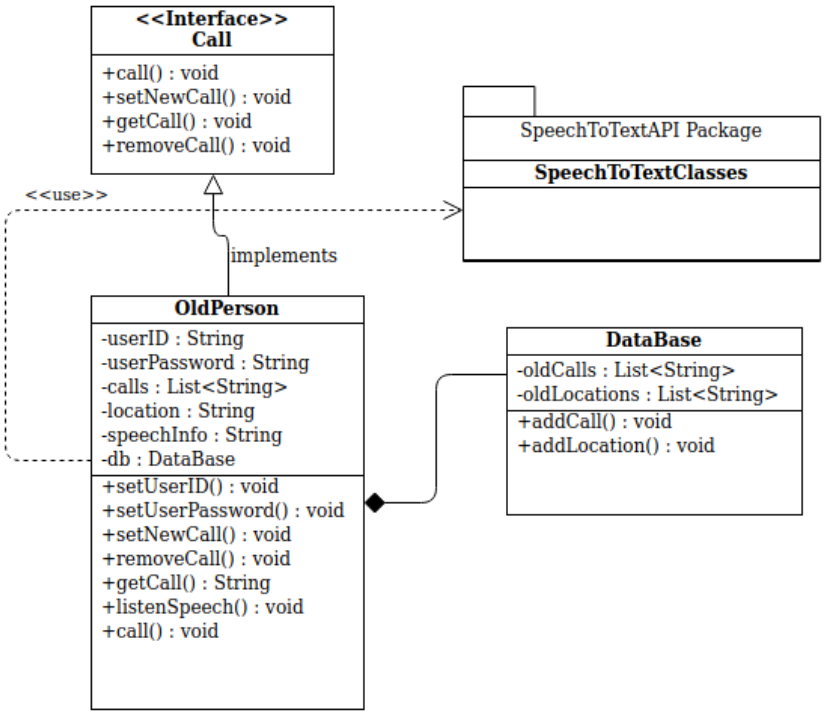
9.4 Performance

Must resolve locking issues and handle concurrent use of the system on a 24x7 basis. Send, receive and display user calls to assist the over-all user experience.

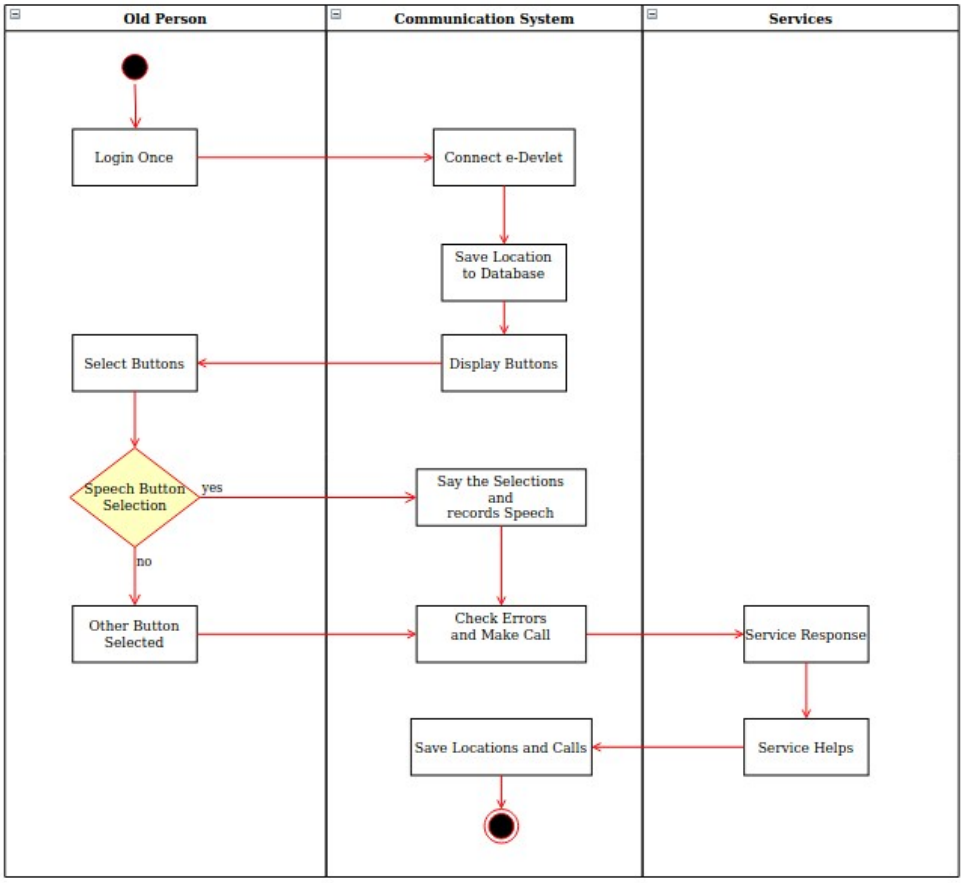
9.5 Data repository

The online call registration system will maintain the existing call registration database as the main repository of data.

9.5.1 Class view



9.5.2 Activity Diagram



10 Output Requirements

10.1 Transaction summary and confirmation

Each communication user will see what is happening when he/she push to buttons and make the call to services. After the success calls it will show up a big green tick or in failure a big red cross symbols.

10.2 Exception reports

System exception reports are built and stores the location information in if some unexpected situations happens as earthquake, flood or something like that kind of natural or other disasters. Then calls the government emergency services automatically and shares the location with them.

10.3 Registration Reports and summaries

Registrar and System administrators must be able to extract summarized and rolled-up data into meaningful information. All records will be archived but accessible on demand.

11 Hardware Requirements

11.1 Network

Cloud Host Network

11.2 Client Devices

Android and iOS Smart Phones or Smart Devices

11.3 IBM Mainframe

The environment that will the rented host databases

11.4 Production support systems

Android Play Store and iOS App Store provides to update of software for to fix bugs and maintain.

12 Software Requirements

12.1 Client Operating Systems

- Android
- iOS

12.2 Client Application

Android versions and iOS versions :

- Android 4, 4.1, 4.4, 5, 6, 7, 8, 9, 10, 11 and 11+
- iOS 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 13+

12.3 Network system

Database will be in the cloud host network software.

- TCP/IP
- HTTP
- HTTPS
- FTP

12.4 Mainframe system

- IBM Gateway
- Firabase database

12.5 Licenses

Valid licenses are required to run software from third party vendors:

- To use application development tools
- To use web server, application server and database software in development, test and production mode

13 Deployment Requirements