# Software Requirements Specification

# for

# THIRD EYE

Version 1.0 approved

Prepared by PRAGATI PATIL

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE(IT)

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# INTRODUCTION

## Purpose

This software requirement specification document is stating the detailed explanation of the architecture, functionalities and specifications of the Third Eye project. This document is going to serve as a guideline for the users as well as for the development team.

Target audiences of this project are people with complete blindness or low vision and the teachers or consultant of the users defined as helpers.

This application is for blind people who can’t see anything but they can visualize the things.as a hardware braille keyboards will be used in entire project which can be connected to a Desktop or laptop and phones with USB.

## Document Conventions

Description of shortcut words are define in glossary and the main words are mention in bold text format

The following are the list of convention and synonyms used in document and project

|  |  |
| --- | --- |
| Consultant (Teacher) | A log in id representing the user with user administration privileges to software ,consultant is resposible for adding functions into the system |
| User (blind person) | Intend user of software |
| sql | databse |
| Vb.net(visual basic) | Programming languge,gui |

## Intended Audience and Reading Suggestion

This document is intended for all individuals participating in and/or supervising the Third Eye project. Readers interested in a brief overview of the product should focus on the rest of Part 1 (Introduction), as well as Part 2 of the document (Overall Description), which provide a brief overview of each aspect of the project as a whole.

These readers may also be interested in Part 6 (Key Milestones) which lays out a concise timeline of the project. Readers who wish to explore the features of Third Eye in more detail should read on to Part 4 (specific requirement use case ), which expands upon the information laid out in the main overview. Part 3 (External Interface Requirements) offers further technical details, including information on the user interface as well as the hardware and software platforms on which the application will run.

Readers interested in the non-technical aspects of the project should read Part 5, which covers performance, safety, security, and various other attributes that will be important to users. Readers who have not found the information they are looking for should check Part 6 (Other Requirements), which includes any additional information which does not fit logically into the other sections.

There will be two main audience who needs to read this document :

1.**Developer** :-

1. Manager : manager needs to read whole document because manager manages the flow of project .how system will work and in which direction

## Programmer : according to requirement programmners need to do code

## Tester : to requirement tester will apply test cases on project

2.**Consultant** :-

## teacher : programming code is not understandable to other people except developer team,so consultant needs to read document for knowing how system will work what they need to do for particular task.

## Product Scope

The Third Eye system is composed of two main components: a client-side application which will run on Desktop,laptop and android handset, and a server-side application which will support and interact with various client-side features.

The system is designed to facilitate the process of learning through computer or electronic device. Potential scenarios include learn alphabets,tables,mathematical function through voice command and listen music.

This application provides essential way to blind people for communicating with computer or mobile phones.,this will work as customer service this system will dectate instruction in the form of human voices that how system will work and what will be the next step

## References

Shradhand hostel for blind people

<https://appadvice.com/applists/show/apps-for-the-visually-impaired>

# OVERALL DESCRIPTION

## Product Perspective

The Third Eye project is a new, self-contained product intended for use on the Desktop and Android platform.,there is also a server-side component which will be responsible for database and synchronization services. The scope of the project encompasses both server- and client-side functionalities, so both aspects are covered in detail within this document.

## Product Features

The following list offers a brief outline and description of the main features and functionalities of the Third Eye system. The features has some core features. Core features are essential to the application’s operation,.The latter features will only be implemented as time permits.

CORE FEATURES :-

* USER REGISTRATION & WELCOME :
* Only appears once (the first time the application is run)
* Allows the user to register with the Third Eye server
* Enables the user to customize his/her account settings and preferences
* HELP MENU :
* Displays a list of topics covering the different components of Third Eye
* Offers detailed information on each feature, menu, etc.
* PUSH NOTIFICATIONS :
* Appear after any significant event occurs in a system(voice command)
* Remind users of unresolved debt
* POSTING FUNCTIONS :
* allow user (Teacher) to add functions like alphabets,tables,mathematical functions and music
* user can update data
* HISTORY :
* automatically records all the learned sections.

## User Classes and Characteristics

The Third Eye project is meant to offer a learning solution that is faster, easier, and more convenient for blind people. The following list categorizes the scenarios in which Third Eye is expected to be utilized:

* Long term recurring learning :
* Key functions :
* Keep track of functions
* Notify users when debts are incurred
* Record who has learned and who still learning
* Requirements:
* Method for inputting funcion into the application
* Support for automated notifications
* Database containing current debts, past data, etc.
* Short term recurring learning :
* Key function :
* learn new functions
* Requirement:
* grasp new design and function

## Operating Environment

The main component of the Third Eye project is the software application.this application is fully graphics-intensive,so there are practical hardware constraints.the application can run on Windows os platform with 1 GB of RAM and 15GB of allocated storage space .the Third Eye database will be stored on the server using MySQL and will be interfaced with a wrapper written in vb.net.

## Design and Implementation Constraints

The primary design constraint is the desktop application. Creating a user interface which is both effective and easily navigable will pose a difficult challenge. Other constraints such as limited memory and processing power are also worth considering. Third Eye is meant to be quick and responsive, even when dealing with large groups, so each feature must be designed and implemented with efficiency in mind.

## User Documentation

The primary goal of Third Eye is to *facilitate* the process of learning. Consequently, the application will be designed to be as simple to use as possible. Nonetheless, users may still require some supplementary information about each component of the Third Eye system.

The Help menu is a collection of topics covering each of the application’s menus, features, etc. At any time, the user can navigate to the Help menu and select any of these topics to obtain more information.

The Third Eye tutorial takes all of these topics and condenses them into a single, step-by-step demonstration that the user can access immediately after installing the application. This tutorial is meant to quickly and effectively teach new users the “ins and outs” of the application.

# EXTERNAL INTERFACE REQUIREMENTS

## User Interfaces

* From every menu, the user can access the built-in settings and back/previous button o These are physical buttons built into the system.
* Every menu will have a descriptive title and if we tap that menu system will dectate the title.

WELCOME SCREEN FOR CONSULTANT :

* For first-time users only
* Prompts the user to enter account information to be stored on the server
* Notifies the user if their information is invalid

WELCOME SCREEN FOR BLIND PERSON :

* Provides a quick tutorial which explains the different menus and options.

CREATE /UPDATE OPTIONS FOR CONSULTANT:

* In this section consultant or teacher can add different function or can update existing data.

## Hardware Interfaces

Third Eye is intended as a standalone for the Desktop platform and hence is solely supported on windows os devices.. This produces the illusion of peer-to-peer interactivity between user and system, however this is not the case as all interactions always run through the central server first.

Third Eye is being developed specifically for windows 7 or windows 8 and all versions released after it.

## Software Interfaces

The Third Eye app is to be developed under the windows operating systems using the visual basic and the visual basic.net tools

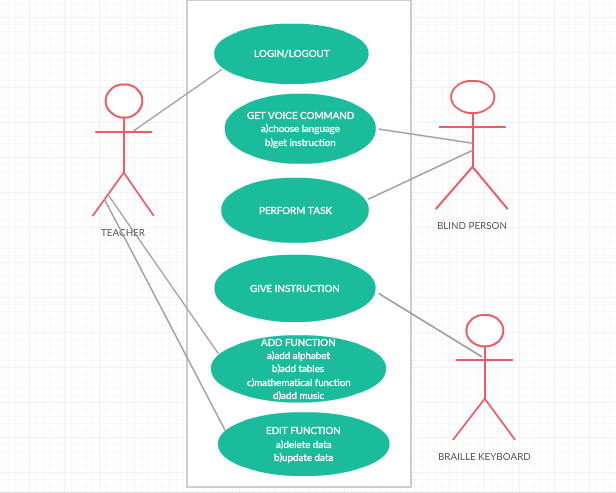
## Communications Interfaces

The product calls for a database system that stores user information.blind person can communicate with system through braille keyboard and system will be dectate title of menu once we tap on it.

# SPECIFIC REQUIREMENT

## Use case diagram:

THIRD EYE



**4.2 Use case reports :**

Primary actors :

1. Teacher

2. blind person

3. braille keyboard

* TEACHER : Is responsible for registering into the system and initiating a project,add and update functions.
* Login/Logout : user needs to login for adding some data
* precondition :system should be working
* basic flow of event :

1. user will turn on the system
2. if there is new user then user will register into system
3. user will enter id password for entering into system
4. user will add function
5. logout

* Add Function : Add new function into system
* precondition : user should be logged in the system
* basic flow :

1. add function according to its title(tables,alphabets,mathematical function)
2. add music

* Edit or Update Function : edit existing data
* precondition : user should be loggged in the system
* basic flow :

1. delete unwanted data
2. update existing data

* BLIND PERSON :Is resposible for learning the various thing such as mathematical funcion,alphabets etc
* Get Voice Command : get voice command in the form of instruction for performing task
* precondition : system and braille keyboard should be working and system should have appropriate functions
* basic flow :

1. turn on the system
2. listen command carefully

* Perform Task : after listing command execute he task
* precondition : power supply should be there and system should have appropriate functions
* basic flow :

1. listen command
2. do task according to command

* BRAILLE KEYBOARD :BK is medium this is resposible for giving istruction
* Give Instruction :give instruction to system through keys
* precondition : power supply should be there
* basic flow :

1. turn on the system
2. press key according to istructions given by the system

Preconditions :

* braille keyboard working properly
* systems are working properly and it has appropriate functions
* power supply should be there

Basic Flow :

|  |  |
| --- | --- |
| USER | SYSTEM |
| 1)teacher enter login id and password  4)teacher will add function or will update existing data  6)teacher will log out from system  7)blind person will start using the system  9)blind person will choose language  11)blind person will choose function | 2)system will authenticate user  3)give message to user if user enter id and password correctly.  5)give notification that data is updated succesfully  8)ask for language(voice command)  10)ask for function(voice command)  12)system will show appropriate function. |

Alternative flows :

2a.teacher is not validated

2a1.system shows error message

3a .wrong information is added.

4a.some keys are not working

4a1.give wrong instruction

9aselect wrong language

9a1.system will do further steps in selected language

9a2.system will ask again for proper language ,rediect to step 8.

11a.select wrong function

11a1 system proceed in selected function

11a2 redirect to step 10 for choosing right option again.

**5. OTHER NONFUNCTIONAL REQUIREMENTS**

**5.1 Performance Requirements :**

Performance should not be an issue because all of our server queries involve small pieces of data. Changing screens will require very little computation and thus will occur very quickly.

**5.2 Safety Requirements :**

Third Eye will not affect data stored outside of its servers nor will it affect any other applications installed on the user’s Desktop. It cannot cause any damage to the system or its internal components.

**5.3 Security Requirements :**

This application assumes that only the user or whoever he/she allows will have access to his/her desktop account. With that being said, only a Google email address and any set password is required to verify the identity of the user upon opening the software.

**5.4 Software Quality Attributes :**

The graphical user interface of Third Eye is to be designed with usability as the first priority. The app will be presented and organized in a manner that is both visually appealing and easy for the user to navigate. There will be feedbacks and visual cues such as notifications to inform users of updates and pop-ups to provide users with instructions.

To ensure reliability and correctness, there will be zero tolerance for errors in the algorithm that computes .

Furthermore, the consultant or teacher also has the option to add new function to the system. Overall, the app balances both the ease of use and the ease of learning. The layout and UI of the app will be simple enough that users will take no time to learn its features and navigate through it with little difficulty.

# 6.OTHER REQUIREMENTS

**6.1 Key milestones :**

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Deadline** | **Comments** |
| *SRS document* | 25/9/2017 | Abstract done by sep 15 so a presentation can be created |
| *Finalized*  *Interface Design* | 5/10/2017 | Designs should be done a week in advance of abstract for revisions |
| *Finalized*  *Algorithm Design* | 5/10/2017 | Designs should be done a week in advance of abstract because of bugs |
| *SDD document* | 20/10/2017 | Abstract done by sep 15 so a presentation can be created |
| *Server Setup* | 25/10/2017 | This should be done in the beginning of the implementation phase to sync with other features |
| *Interface &*  *Algorithm*  *Implementation* | 5/11/2017 | This should be completed two weeks in advance of complete project so app can be thoroughly tested and bugs fixed |
| *Software Festival* | 15/11/2017 | Completion of project |

**6.2 Key Resources Requirements :**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Major Project**  **Activities** | | **Skill/Expertise**  **Required** | | **Internal**  **Resource** | | **External Resource** | | **Issues/Constraints** | |
| Create a Server application | | Database systems & servers experience | | should have general knowledge  in this field | | Lan | | limited number of team members with SQL/visual basic experience | |
| Sync the Server to the Application | | Application networking with ofline servers | | Should have general knowledge  in this field | | Lan | | Possible compatibility issues | |
| Design the  Interface | | Design & usability experience; familiarity with desktop GUI design | | Should have extensive digital design experience; should have experience with human-computer  interaction (HCI) | | Desktop application Developers,community; published examples | | Schedule conflicts; | |
| Design an algorithm | | Knowledge & experience designing mathematical algorithms | | All members have taken data structures and algorithms | | Desktop application Developers community; published examples | | Potential schedule conflicts | |
| Implement an algorithm | | Familiarity with the  Standlone development environment | | All team members have vb programming experience | | Desktop application Developers community; published examples  Android emulators are publicly available for testing | | Potential schedule conflicts | |
| Implement the interface | Familiarity with GUI implementation | | All team members have vb programming experience | | Desktop Developers community; published examples  Android emulators are publicly available for testing | | Potential schedule conflicts | |

**6.3 Other Requirements :**

A database for Third Eye calls for a server side implementation that holds information for the users, function, as well as all the relationships involved. The database will be using MySQL. The following provides an example of information that may be stored in the database:

* **Users**: ID, emil,password
* **Transactions**: Members Involved, Date, Time,learned function

The server will be configured on a windows platform and through use of visual basic will allow interaction and processing in conjunction with the database. Processes to be done on the server include: pushing/pulling data, updating data, and generating notifications.