WEB APPLICATION FOR BLIND PEOPLE(SONIAA)

Group 5

Guided By:

Mrs. Vishnupriya G S

Department of Computer Science Engineering
College of engineering Cherthala

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OVERVIEW

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INTRODUCTION

- Blind people do not have luxury to read and write.
- This project is proposed to reduce the obstructions faced by visually impaired people.
- We are making an application which will enable to read and write emails using speech engine.
- This application will also provides verbal calculator and verbal search engine.
- Along with the above features this web app also helps blind people to read ebook.

PROBLEM STATEMENT

- In the current android systems, there is no mechanism for voice command on android events like composing email,verbal search engine,verbal calculator and so on in a single platform in malayalam.
- most of the currently available systems do not provide access to native languages.
- Sonia will be a platform which demands solutions for the same.

LITERATURE SURVEY

[1]**Current Systems**

- The current email system and mobile calculator available do not have a speech to text application.
- But google calculator provides a speech to text application, but it is not available in malayalam.

LITERATURE SURVEY

[2]**An Outdoor Navigation Assistance System for Visually Impaired People in Public Transportation**
by Salvador Martinez-Cruz, Luis A. Morales-Hernandes

- The proposed system uses Bluetooth Low Energy (BLE) technology for location and communication purposes, and a mobile application for user-smartphone interaction.
- The BLE beacons are installed on buses and their stops; accordingly, the mobile application tracks them in real- time and provides the relevant information to the user employing verbal instructions.

LITERATURE SURVEY

[3]**Voice based E-Mail with Attachment for Blind** by N Kavi Prakash; Tenzin Monlam; Rohan Singh; RP Aravindhan;

- The internet is one of the revolutionary outcomes of the last decade of the twentieth century.
- Some researchers have developed solutions that allow blind and visually impaired persons to use E-mail.
- The proposed system will function entirely without using a keyboard, mouse, and third-party assistance.
- Face recognition was used to simplify the security of the proposed model.

LITERATURE SURVEY

[4]**Human computer interaction(HCI) based Smart Voice Email (Vmail) Application - Assistant for Visually Impaired Users (VIU)** by S. Noel

- A formal or casual communication is now sent through email. This application recognizes user voice and performs comparisons with pre-sample voice stored in the database.
- Common day-to-day spoken words are used as command language.
- It focuses on reducing the load incurred in human memory.
- Google web kit API is used in this application for speech recognition.

LITERATURE SURVEY

[5]**An App to Assist Differently Abled People** by A. M. Lokeshwar, A. Hardikar, G. C. Srivarsha, R. S. Priyanka and K. J. Bhanushree

- The system proposes an application for differently abled people such as blind, deaf, dumb and hand disabled to communicate among themselves using Android Development.
- It includes voice enabled object detection and distance estimation assistance to blind using Tensorflow Lite Object Detection API, image to speech conversion using OCR text recognition with OpenCV and TextToSpeech API to assist the blind.
- The application also has text- to-speech conversion using TextToSpeech API and speech-to- text conversion using a Speech Recognition library to facilitate easy chatting among themselves.
- It also provides chatting option built using Firebase.

LITERATURE SURVEY

[6]**Voice Email Based On SMTP For Physically Handicapped** by S. Kumar, Y. R. and R. Aishwarya

- Paper aims at creating an email system that helps even new users or physically impaired people to use the system for communicationwithout any previous practices.
- The system is completely based on voice interaction to utilize the technology in an easy and hassle free manner.
- There are all the options available to send emails and perform all the functions for the email system.

LITERATURE SURVEY

[7]**VMAIL-Voice Enabled Mail Reader** by K. V. N. Sunitha and N. Kalyani

- VMAIL- Voice Enabled Mail Reader, system developed for person who requires comfort and is essential for a person with disability.
- The speech synthesis embedded in VMAIL system can read aloud any written text, avoiding eye strain and save time, reading on the computer.
- This is a web based system developed using HTML and java. It can be employed as an aid for the people who suffer with visual impairment.
- It helps us to convert written Telugu text to audio files and play them.
- The user can receive, compose and send a mail to another VMAIL user.

LITERATURE SURVEY

[8]**Dynamic AI based Email Voice Assistant for Web Services** by K. G. Maheswari, R. Meenakshi, G. NaliniPriya, K. Anandasayanam, B. Hariram and G. Maheswara Pandian

- This is an AI based email voice assistant system. Voice assistant listens to user's voice input and converts it as a text and then sends it as an email message.
- User's email id and its Gmail account's password are provided to authenticate.
- Executed using Python in PyCharm community IDE.

Literature Survey-Comparison

Reference	Advantages	Disadvantages
An Outdoor Navigation Assistance System for Visually Impaired People in Public Transportation:	The mobile application tracks location in real- time and provides the relevant information to the user employing verbal instructions (speech-to-text conversion)	Not available in native language and also do not have other applications.
Voice based E-Mail with Attachment for Blind	Function entirely without using a keyboard, mouse, and third-party assistance using speech-to-text conversion	Native languages are not available. Face recognition was used to simplify the security of the proposed mode.
Human computer interaction(HCI) based Smart Voice Email (Vmail) Application	It focuses on reducing the load incurred in human memory.	It does not provide verbal calculator, verbal ebook, verbal search engine etc

Literature Survey-Comparison

An App to Assist Differently Abled People.	It includes voice enabled object detection and distance estimation assistance to blind.	Verbal email service is not available.
Voice Email Based On SMTP For Physically Handicapped	There are all the options available to send emails and perform all the functions for the email system.	No provision for Malayalam language.
VMAIL-Voice Enabled Mail Reader	It helps us to convert written Telugu text to audio files and play them.	Other applications such as verbal calculator is not available.
Dynamic AI based Email Voice Assistant for Web Services	Voice assistant listens to user's voice input and converts it as a text and then sends it as an email message.	No provision for Malayalam language.

PROPOSED SYSTEM

The aim is to develop a web application system with improved provisions. The proposed solution can overcome all the limitation of the existing system, such as

- read and write emails using speech engine
- verbal calculator,verbal search engine , verbal eBook etc., in malayalam.

DEVELOPMENT ENVIRONMENT

HARDWARE REQUIREMENTS

- Processor:Above intel core i3,ios, Android
- Other Requirements: Microphone,speaker,browser

SOFTWARE REQUIREMENTS

- Frontend: HTML, CSS,JavaScript
- Backend: Python-Django, SQLite
- Libraries: pyAudio,speechreconginition,gtts,wikipedia,smtplib,playsound.

FUNCTIONAL REQUIREMENTS

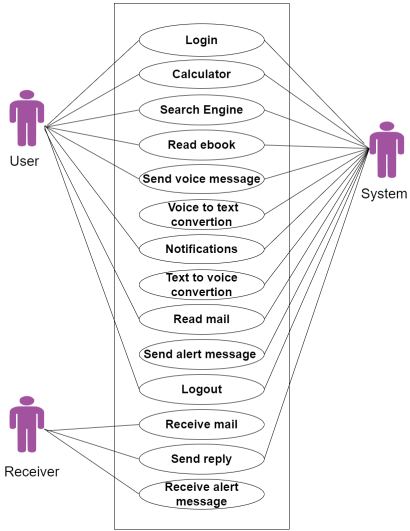
- User is the only person who can login to the system .
- User have to login to the system by using google authentication.
- This procedure is only when the user uses the application for the first time.
- Googel authentication is not required after the first login.

FUNCTIONAL REQUIREMENTS

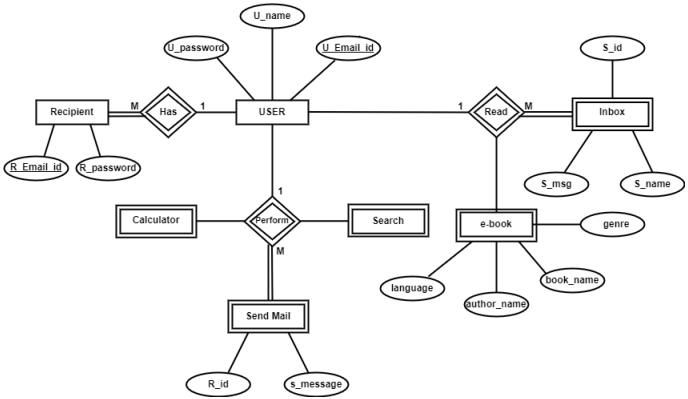
User dashboard

- Login.
- Compose mail.
- Read mail.
- Read ebook.
- Verbal calculator.
- Verbal search engine.
- Urgent alert message.
- Logout.

USECASE DIAGRAM



ER DIAGRAM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S_name
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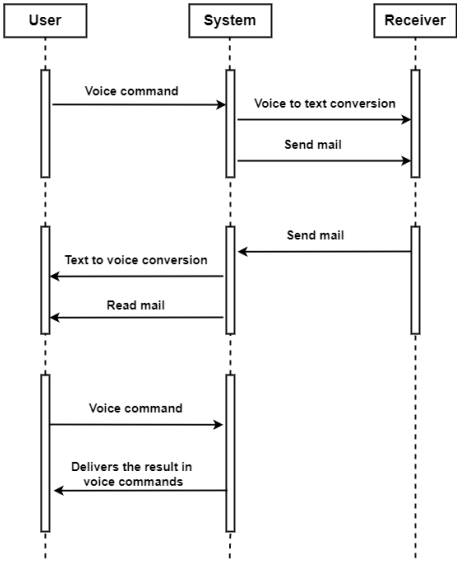
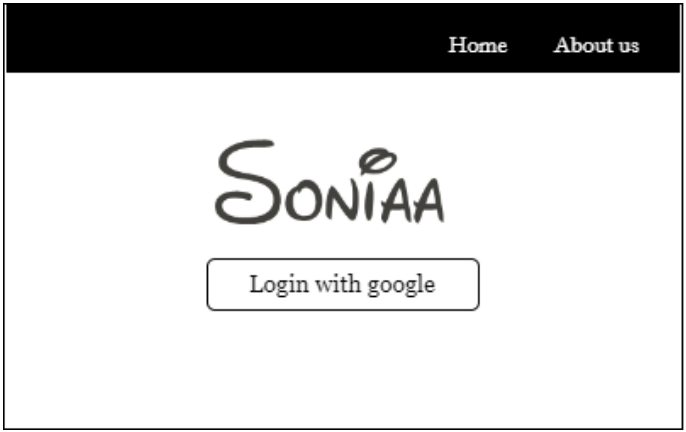
s_message

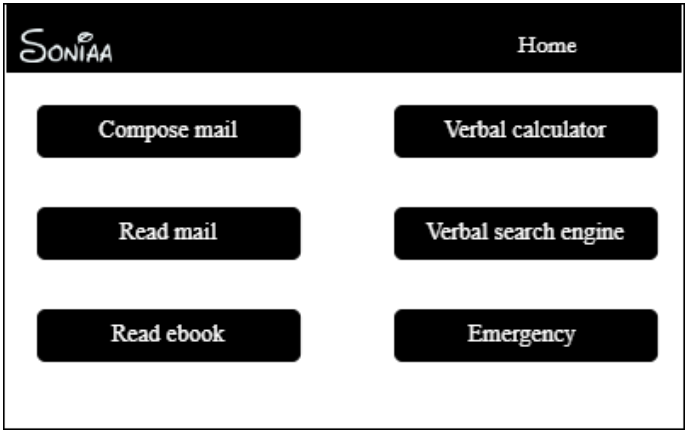
SEQUENCE DIAGRAM



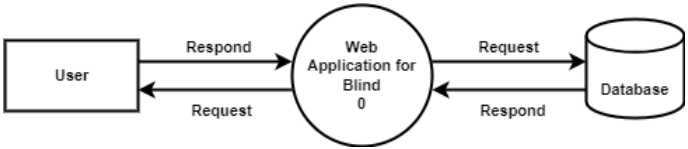
User Interface Diagram



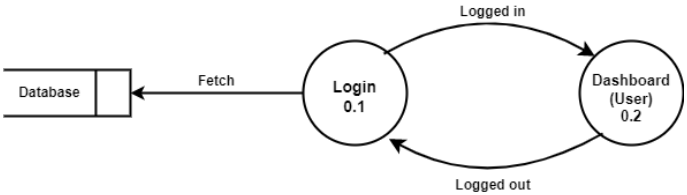
User Interface Diagram



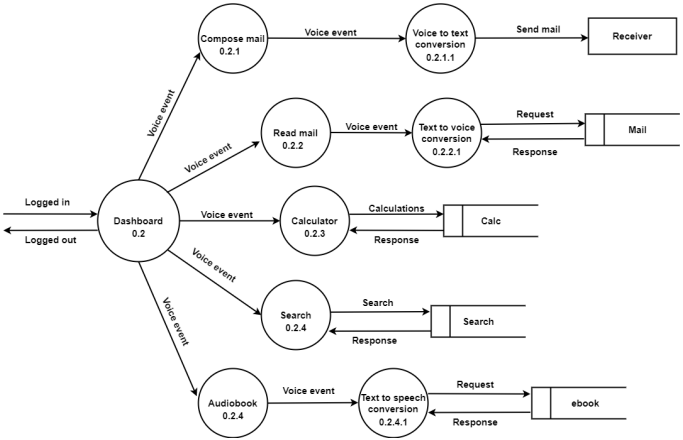
Dataflow diagram - level 0(Context Diagram)



Dataflow diagram - level 1

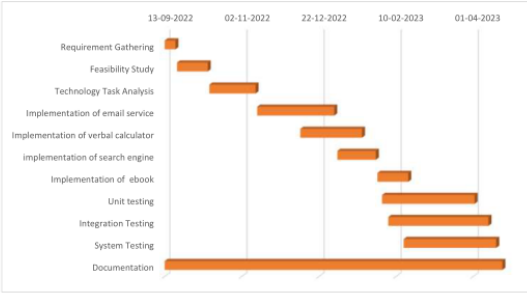


Dataflow diagram - level 2



Gantt Chart

TASKS	Start Date	End Date	Duration
Requirement Gathering	13-09-2022	20-09-2022	7
Feasibility Study	21-09-2022	11-10-2022	20
Technology Task Analysis	12-10-2022	11-11-2022	30
Implementation of email service	12-11-2022	01-01-2023	50
Implementation of verbal calculator	10-12-2022	19-01-2023	40
implementation of search engine	03-01-2023	28-01-2023	25
Implementation of ebook	29-01-2023	18-02-2023	20
Unit testing	01-02-2023	02-04-2023	60
Integration Testing	05-02-2023	11-04-2023	65
System Testing	15-02-2023	16-04-2023	60
Documentation	13-09-2022	20-04-2023	219



CONCLUSION

- We will be building a modern progressive web application to reduce obstructions faced by blind people.
- The system combines the functions of various components to create a multifunctional system for blind and vision impairers.

REFERENCE

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2 N Kavi Prakash; Tenzin Monlam; Rohan Singh; RP Aravindhan; Pentapuri Vishnuvardhan Reddy; Richa Jain "Voice based E-Mail with Attachment for Blind" DOI: 10.1109/ICOEI53556.2022.9776840

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7 K. G. Maheswari, R. Meenakshi, G. NaliniPriya, K. Anandasayanam, B. Hariram and G. Maheswara Pandian, ”Dynamic AI based Email Voice Assistant for Web Services,” 2022 International Conference on Smart Technologies and Systems for Next Generation Computing (ICSTSN), 2022, pp. 1-4, doi: 10.1109/ICSTSN53084.2022.9761287.

Thank You

for Listening.