Read To Me: Text to Speech for Visually Impaired People

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Chapter 1

INTRODUCTION

1.1 Overview

Reading is part of our daily life and is incredibly essential. Out of 314 million visually impaired individuals all round the world, forty five Million people are blind and new cases are being additional every year. The Recent advancements in portable workstation vision, computerized cameras, and transportable tablets construct it conceivable to help these individuals by creating camera-based item that blend PC vision innovation with various existing modern item such optical character acknowledgment (OCR) frameworks. Composed content is wherever inside the style of reports, receipts, bank explanations, structure menus, workforce or school gifts, item bundles, restorative jugs and so forth. In accordance with the planet Health Organization, 1.4 million visually impaired individuals square measure minors underneath the age of fifteen, and ninetieth of people with debilitation's live in low and center monetary benefit nations.

Besides, Today's mechanical headways give a certain and require full base for finding the best and financially savvy answers for this disappointing issue. Be that as it may, in spite of the dug in look into endeavors around there, the universe of print data, for example, daily papers, books, sign sheets, and menus remain for the most part distant to outwardly hindered people.

Thus, with an end goal to look for a response to this steady issue, an assistive innovation based arrangement, alluded to as Read with Cloud, is created and tried in the work exhibited here. The venture expects to actualize a perusing help that is little in estimate, lightweight, productive in utilizing computational assets, practical and obviously easy to understand.

1.1.1 Domain Overview

There are many number of assistive systems available today which can help a visually impaired but they have certain issues reducing the feasibility for the visually challenged persons. For instance, convenient scanner tag perusers intended to enable visually impaired individuals to distinguish diverse items, it empowers the clients who are incognizant in regards to get to Information about these items through discourse and Braille. Be that as it may, here the troublesome part is it is having a few constraints with the end goal that it is hard for dazzle clients to discover the position of the standardized identification and to accurately point the scanner tag perusers at the scanner tag.

There are frameworks like K Reader Mobile it keeps running on a wireless and enables the client to peruse mail, receipts, fliers, and numerous different reports. In any case, if the peruse needs to peruse any of the archive that must be about level, set on a reasonable, dull surface (i.e., a no jumbled foundation), and contain for the most part message. Besides Reader Mobile can precisely read the dark print on a white foundation however has issues in perceiving shaded content or the contents on a hued foundation. It can't check content with entangled foundations. Primary objective point is to grow such a framework which will check the writings from confused foundations with achievement.

1.1.2 Overview of Cloud Distributed Infrastructure

Computing of cloud infrastructure is furthermore known as on-concern problem solving technique, is a form that is based on internet transaction which has distributed portions of preparing valuable materials and information to different devices and PCs on-curiosity. It is a model for authorizing universal, on-concern access to shared join of an arrangement of parts processing valuable materials. Distributed procedure of calculation and capacity of organizing, give customers and attempting different abilities to lay aside and process their data that are excluded from server farms. It is to be contingent upon a distribution of valuable materials to achieve lucidness and saving in cost of production that is dye to mass production, like the service over a system. At an act of formation of distributed cloud computing is a broader paradigm of merged initialization and has in common gadgets.

The current accessibility of high-boundary system, to enforce minimal effort PCs and capability to perform on gadgets and also limitless appropriation of equipment

perception, authorization on situated engineering and automatic utility of program processing have scheduled a development in distributed cloud computing. Organizations can increase proportionally as registering needs increments and after that reduce proportionally again an interest diminish.

Distributed cloud computing has moved around into a much requested administration or a utility due to the benefits of high power problem solving technique, shabby expense of authorizations, of high performance, having wide variety of skills, willingness and also availability.

But because of being in an early stage, it still has unexpected difficulty that need proper attention to make cloud computing more reliable and user friendly.
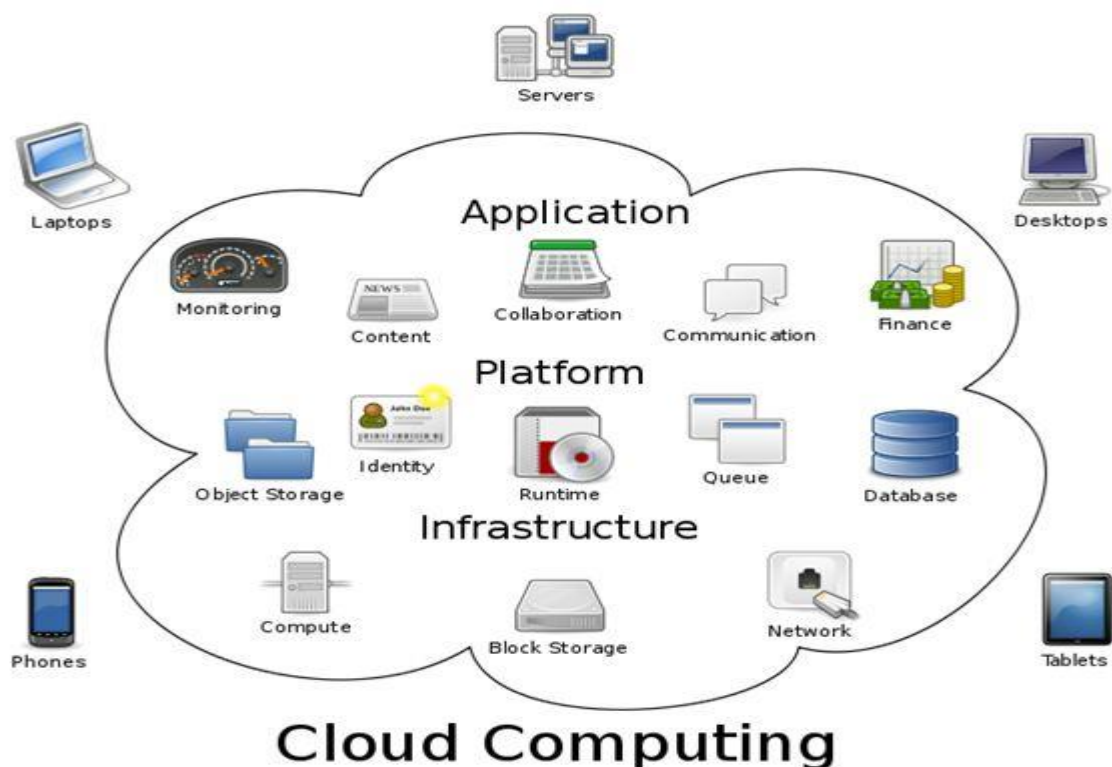

Figure1.1: Overview of cloud distributed infrastructure.

Chapter 2

Literature Survey

This survey provides a review on the project report. It briefs about the various research and analyses made in the field of interest. This is an important part since it gives direction in the area of research. Literature survey provides the guidelines for the research such that the different types of inputs to the work would be provided. This survey provides the description of the sources that have been useful for the research.

2.1 Related Work

In 2007 The Sneha Sharma and the Dr. Roxanne Canosa proposed the "Extraction of Text Regions in Natural Images"

The identification and extraction of content areas in a photo might be a standard downside inside the portable workstation vision investigation space. The objective of this venture is to contrast two essential methodologies with content extraction in normal (non-record) pictures: edge-based and associated part based. The calculations square measure upheld and assessed utilizing an arrangement of pictures of characteristic scenes that adjuston the span of lighting, scale and introduction. Exactness, accuracy and review rates for each approach are dissected to decide the achievement and restrictions of each approach. Proposals for enhancements are given in light of the outcomes.

The substance can be as items, shading, surface, shape and additionally the connections between them. The semantic data given by a picture can be valuable for content based picture recovery, and additionally to index and arrangement purposes. Content learning is particularly consideration getting, because of content will be usual just and plainly depict the substance of a photo. Since the content information can be installed in a picture or video in various textual style styles, sizes, introductions, hues, and against a perplexing foundation, the issue of separating the competitor content locale turns into a testing one . Additionally, current Optical Character Recognition (OCR) systems can just deal with content against a plain monochrome foundation and can't separate content from an intricate or finished foundation

In 2010 The Dimitrios Dakopoulos and Nikolaos G. Bourbakis, Fellow Proposes ``Wearable Obstacle Avoidance Electronic Travel Aids for Blind”

The assortment of moveable or wearable route frameworks are created to help daze people all through route in out of entryways or indoor situations. There are three principle classes of these frameworks: Electronic travel helps, and position locator gadgets, electronic introduction helps. This paper shows a near study of the wearable deterrent location frameworks to clients and which illuminates the investigation group in regards to the abilities of those frameworks and in regards to the advance in assistive innovation for outwardly debilitated individuals. The review depends on different execution parameters and elements of the frameworks that characterize them in classifications.

To address the difficulties determined in the past area, analysts has did as such many endeavors to facilitate the many-sided quality of visually impaired individuals by proposing different procedures that believers content to capable of being heard sounds. Tyflos is a couple of glasses that had cameras joined to the side, headphones, and a mouthpiece. Voice orders can be utilized to manage the client and direct the stage. A few charges incorporate "draw paper nearer," "move paper up," "move paper up, appropriate" from the gadget to the client, and "rewind passage," "forward section," and "volume up" from the client to the gadget. Be that as it may, the voices UI won't not work splendidly in an uproarious situation, rendering it constrained to indoor utilize.

In 2009 The Bharat Bhargava, Pelin Angin and Lian Duan Proposes '' A Mobile-Cloud Pedestrian Crossing Guide for the Blind''

This framework encourage dazzle and outwardly debilitated people to watch the remaining of passerby signals at road for safe outside route. This framework propose a portable cloud cooperative approach for Context mindful open air route, where it utilize the computational energy of assets made accessible by distributed computing suppliers for ongoing picture preparing. The arranged framework configuration has the advantages of being base infrastructural dependence and extensile , so allowing wide ease of use. The arranged approach is for period crossing steerage for daze people on foot.

The two most vital parts of the person on foot flag status identification issue are auspiciousness of reaction and exactness. The ongoing way of the issue requires.

Reaction times of under 1 second as expressed some time recently, while high precision of discovery ought to be accomplished to guarantee wellbeing of the client. Analyses were performed to test the reaction time of the person on foot flag locator application created. Test information utilized as a part of the trials comprises of pictures at open air areas of the Purdue University ampus, which incorporate scenes of various walker signals. The application created was introduced on an Android cell phone, associated with the Internet through a remote system on grounds.

The specimen errand inside the investigations concerned process are entirely unexpected determination level forms of pictures. The normal reaction times, which were controlled when period between catching a casing and getting the reaction from the server running at Amazon Elastic Compute Cloud about the person on foot flag standing, were measured for each casing determination level as dictated by a Java stage particular measure.

A determination level of 0.75 stands for the first casing as caught by the camera, though the lower determination levels speak to compacted variants of a similar arrangement of edges, where picture quality falls with diminishing determination level. The reaction times for various determination levels are found in figure 5 underneath. Reaction times for the first casings are around 660 milliseconds by and large, which are satisfactory levels for the constant prerequisites of the issue. We furthermore observe that inertness diminishes extra once bring down quality, compacted variants of the casings are sent to the remote server instead of the firsts.

In 2011 The Yingli Tian, Chucai Yi Proposes ``Assistive Text Reading from Complex Background for Blind Persons''.

It displays a framework for dazzle people to peruse content from question and signage that are held in the hand. The framework read content from complex foundations and after that conveys this data aurally. They style an extraordinary content limitation algorithmic program to restrict content areas in pictures with entangled foundations, by

learning inclination alternatives of circulations of edge pixels in relate Ada help model and stroke introduction. Optical character acknowledgment (OCR) programming is utilized to perceive Text characters in the confined areas and changed into discourse yields. The execution of the arranged framework is assessed on ICDAR 2003 in number Reading Data set.

In 2015 The Yasar Guneri Sahin, Baris Aslan, Sinan Talebi, Ayberk Zeray ``A SMART TACTILE FOR VISUALLY IMPAIRED PEOPLE".

The impaired persons have many difficulties in society. One of the most significant difficulties is traveling because of inappropriate city designs. Recent developments in technology have enabled several facilities, such as tactile paving surfaces, to improve their lives, but so far there is no comprehensive solution to the problems they face. This study proposes a new, cost efficient and simple system, which consists : tagged paths and batons to make traveling alone possible.

The proposed system is available for Android mobile devices and IOS and consists of two software applications, "Out Guide", and "In Guide" for indoor and outdoor environments respectively.

Chapter 3

REQUIREMENT ANALYSIS

3.1 Functional Requirement

• Read with Cloud Android Application

Cell phones are a standout amongst the most regularly utilized electronic devices today. Here, we plan to build up a secluded and amicable application utilizing cloud based OCR stage and the worked in Android TTS for creating a capable of being heard consequence of the content record.

• Selection of OCR and TTS Engines

OCR preparing is CPU concentrated. In this way, with an end goal to keep the power utilization of versatile application to least, and to expand the speed of the OCR, we chose to have the handling be finished utilizing the ABBYY Cloud OCR SDK. Its administration is stage in subordinate because of the reality it is open through Web API and is not running on the gadget itself. So a Web API given by ABBYY can be produced to keep running under any OS stage.

Notwithstanding, the product is business and requires a web association. Since ABBYY fuses pre-preparing and post handling stages for the OCR content, thusly it emerges as the most ideal stage for characters acknowledgment. It takes out the overhead cost of enhancing picture quality before separating content from the picture. This product is not just constrained to the acknowledgment of the content records however and in addition

Standardized tag acknowledgment, hand-printed content acknowledgment, business card acknowledgment and backings up to 198 acknowledgment dialects including French, English and German in shifted textual style styles, for example, Normal (Ariel, Times New Roman or Courier), Gothic, content, attractive ink characters and framework . In addition, in the wake of running tests for the correlation of acknowledgment exactness, it was discovered that ABBYY has a precision of 95.96% contrasted with 89.78% of Tesseract another OCR motor.

3.2 Non Functional Requirement

The principal non functional constraints which are relevant to   critical systems:

- **Reliability**
- **Performance**
- **Security**
- **Safety**
- **Usability**

Non-utilitarian request could be a request that indicates the models that is utilized any to assess the operation of a full framework, rather than exclusively the exact practices. They're appeared differently in relation to useful necessities that layout particular conduct or capacities. The set up for actualizing down to earth necessities is expounded inside the framework style.

Comprehensively, valuable needs layout what a framework is intended to attempt to and non-practical requirements plot however a framework is intended to be. valuable needs region unit like "framework should do <requirement>", an individual activity of a region of the framework, perhaps explicitly inside the feeling of a numerical connection, a recording machine portrayal input, yield, technique and administration helpful model or IPO Model. In refinement, non-practical necessities region unit inside the kind of "framework should be (prerequisite)", Associate in Nursing general property of the framework as a whole or of a chose side and not a specific work. The framework's general properties unremarkably check the refinement between regardless of whether the occasion extend has succeeded or unsuccessful.

Non-practical necessities territory unit regularly known as "quality characteristics" of a framework. diverse terms for non-useful necessities range unit "qualities", "quality objectives", "nature of administration prerequisites", "imperatives" and "non-behavioral necessities". Casually these territory unit by and large known as the "utilities", from properties like security and portability.

Qualities- - that is non-utilitarian necessities - can be isolated into two principle classifications:

• Execution qualities, similar to security and esteem, that ar perceptible at run time.

• Evolution qualities, similar to testability, viability, extensibility and measurability, that are typified inside the static structure of the bundle. Framework Study.

Framework think about is a definite report to decide if, to what degree, and how programmed information preparing gear ought to be utilized. It more often than excludes an investigation of existing framework and plan of new framework, including the improvement of the framework determinations which give a premise to the choice of gear.

3.3 Feasibility Study

The practicability of the venture is broke down amid this area and business proposition is put forward with an outrageously broad organize the venture and a couple esteem gauges. all through framework investigation the practicability investigation of the arranged framework is to be apportioned. This can be to ensure that the arranged framework isn't a weight to the corporate. For practicability examination, some comprehension of the most essential necessities for the framework is imperative.

Three key contemplations required in the achievability examination are

• SPARING FEASIBILITY

• SPECIAL FEASIBILITY

• SOCIAL FEASIBILITY

Sparing Feasibility

This examination is done to check the financial effect that the framework will have on the association. The measure of store that the organization can fill the innovative work of the framework is restricted. The consumption must be advocated. In this manner the created framework also inside the financial plan and this was accomplished

on the grounds that the greater part of the advancements utilized are uninhibitedly accessible.

Specialized Feasibility

This examination is directed to look at the specialized attainability, that is, the specialized necessities of the framework. Any framework created ought not have an appeal on the offered specialized assets. This may cause level of popularity on the offered specialized assets. This may cause level of popularity being put on the shopper. The created framework ought to have an unassuming interest, as exclusively insignificant or invalid changes square measure required for executing this technique.

Social Feasibility

The part of study is to check the level of acknowledgment of the framework by the client. This incorporates the way toward preparing the client to utilize the framework effectively. The client must not feel debilitated by the framework, rather should acknowledge it as a need. The level of acknowledgment by the clients solely relies on upon the ways that ar used to mentor the client concerning the framework and to make him usual to it. His level of certainty must be raised with the goal that he is likewise ready to make some useful feedback, which is invited, as he is the last client of the framework.

3.4 Hardware Requirement

- System : Pentium IV 2.4 GHz.

- Hard Disk :   40 GB.

- Ram : 512 Mb.

- MOBILE : ANDROID

3.5 Software Requirement

- Operating system : Windows 7.

- Front end :   JSP,HTML,CSS

- Back end : JDBC,Servlet

- IDE : Eclipse

Chapter 4

SYSTEM DESIGN

System design is a modeling process. It is a way to deal with make another framework. It can be characterized as a move from client's perspective to software engineers or database individual's perspective. The plan stage goes about as an extension between the required particular and the execution stage.

4.1 Introduction

Perusing is fundamental in day by day life for everybody. Outwardly debilitated people can read just by utilization of unique applications by them like Braille dialect. The disadvantage of this framework is that each item does not give the content in Braille. In this project proposed an assistive content perusing system to help outwardly impeded people to peruse writings from different questions in their day by day lives. At first catch the picture of the required, pre handling is performed on it. Pre handling incorporates steps like dark scale and binarization, question of intrigue acknowledgment.

In the proposed framework making the utilization of OTSU calculation to change over the dim scale picture into binarized one. The content districts from the caught picture are then separated and perceived by utilizing optical character acknowledgment programming (OCR). The principle calculation in OCR to be specific MODI is utilized here. This extricated content of different textual styles and sizes then can be perceived independently and afterward consolidated in a word giving its yield as sound utilizing Text-to-discourse utilizing the SAPI libraries.

ADVANTAGES:

•   More Accuracy

•   Improving image quality

•   Hand-printed text recognition

- Cost viable and obviously easy to use.

- Small in estimate, lightweight, productive in utilizing computational assets

4.2 The configuration stage includes two stages in particular:

- Top - Level Design
- Short - Level Design

The inspiration driving this stage is to orchestrate a response for the issue controlled by the need record. This stage basically moves from issue space to the game plan space. The arrangement of the structure is the most fundamental variable affecting the way of the item. Here we collect the Block Diagram that will be valuable to grasp the lead of the structure. Data stream Diagrams demonstrate stream of data between/among modules.

4.3 Architecture Diagram

The architecture is one of the representation of the theoretical system that defines the structure, behavior along with more specifications about the system. It indicates the fundamental organization of the system that describes various components in it and their relationship with each other and the corresponding environment.

Figure 4.1: System Architecture Diagram

The Above figure 4.1 shows overall system architecture. When user want to read any object then check for internet connection is there or not. If internet connection is there in the mobile user should click on the camera button and capture the object photo which he wants to read. Then it immediately uploaded to OCR cloud for recognition and data extraction. Here image will be converted to text file. Then recognized data(.txt file) export Read with Cloud application.

Read with Cloud application sends data for speech synthesis. Now the text file is send to default android text to speech(TTS) engine. TTS engine outputs speech for the recognized text file. After all these process audio plays to the user through Read with Cloud application.

The venture intends to actualize a perusing help that is little in measure, lightweight, proficient in utilizing computational assets , financially savvy and obviously easy to use. Be that as it may, the exactness of the portable in the transformation endeavors is better, essentially because of the high determination camera worked in the gadget. In future upgrades of this work. We anticipate more work will be created in this basic range of assistive innovation, and venture that future convenient contraptions will have simple to utilize and worked in instrument as perusing helps for the visually impaired, comparative, to the versatile based arrangement introduced here.

4.5 Algorithm

Step1: user should register to the Read with Cloud.

Step2: login with the correct information.

Step3: If Register status is successful then he can login to the Read with Cloud.

Step4: Else wait until the server gives the permission.

Step5: After successful login user can upload the image which he wants

to read.

Step6: Once the image gets uploaded the user can view the upload status.

Step7: The image file will be converted into text file through OCR cloud.

Step8: The text will be converted into audio then user can listen to it.

Step 9: Logout

1. **User Registration.**

   At initial stage the user should register to the cloud server otherwise he can't login to the server, at the time of registration the user should provide all his details like-

   i. User Name-Name of the client initially name center name last name.

   ii. Date of Birth-DOB of clientLocation- from which location he belongs to.

   iii. Profile Photo- Photo of user

   iv. User login name- the name which he is going to enter server as.

   v. Password- a secure password for login

After entering all these details the user will get successful registration to cloud server he can login to cloud server by providing his name and password which he has provided while registration. Once the logs in to server he has to check his registration status to perform further tasks if the status is authorized then can move to any other task.

2. **Registration Status**

When the user logs in to the cloud server he has to check his registration status, if the registration status is waiting then user can't perform any activity he has to wait until cloud server recognise the user and gives him the permission.

Only the cloud server can give the permission to the user to perform any of the tasks by giving the authorized permission.

Once the user is recognized as authorized then he can perform any activity like uploading image and image conversion.

3. **User tasks.**

Once the user gets login to cloud server and recognized as authorized, he can perform the tasks like uploading   image to the cloud   server.

 If the user is the web user then he can select any pre stored image from any location and if the user is android user he take the pick of any text image and he can upload it the cloud server, even the user can view all the images he has uploaded and can even delete

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any of the image , once the user uploads the image the cloud server converts that image file to the text file and user can listen to audio of that text file

4. Cloud server functionality.

The cloud server can view all the users and gives the permission to perform user tasks the server can view the all the user uploaded images and even the text converted images.

The cloud server can even delete any image which has been uploaded by the user.

4.6 Description of Modules

The implementation of any project or application is isolated into small parts called as Modules. Following are the modules in this project. The inspiration driving this stage is to organize a response for the issue dictated by the need record. This stage basically moves from issue space to the plan space. The design of the structure is the most essential variable affecting the way of the item. Here we assemble the Block Diagram that will be useful to comprehend the conduct of the framework. Information stream Diagrams show stream of information between/among modules.

• Picture Capture Module

• Image Upload Module

• Content extraction module

• Audio module

Picture Capture Module

The picture catch module will distinguish the picture caught by the versatile camera. This will be simple for the outwardly impeded individual to catch the picture as the camera will be arranged on the portable. Even the web user can select any image he wants to read, once he selects the image he can upload that to the cloud and that image file will be converted into text file and user can listen to the text.

Image Upload Module

Once the image of the required object is captured it is immediately transfer to cloud for the further processing of the system. The image can be uploaded by capturing or by selection of an existing image.

Content extraction module

This module will perceive and remove the content. This will be accomplished abuse OCR-Optical Character Recognition - is that the mechanical or electronic transformation of pictures of typewritten, composed or composed content into machine-encoded content. We will be misuse here MODI(module appropriation technique) algorithmic program of OCR.Audio module.

The audio module will get the extracted text file as an input and it will read out the text using Text To Speech available in the mobile. If no text is recognized then default audio output will be given. This will be done using SAPI libraries.

4.7 Detailed Design

4.7.1 Data Flow Diagram

Information stream models are an instinctive way demonstrating how information is handled by a framework. At the examination level, they ought to be utilized to demonstrate the route in which information is handled in the current framework. The documentation utilized as a part of these models speaks to practical preparing, information stores and information developments between capacities.

Information stream models are used to demonstrate how data travels through a game plan of taking care of steps. The data is changed at each movement before continuing forward to the accompanying stage. These planning steps or change are extend limits where information stream diagrams are used to file an item arrange. The figure 4.5 demonstrates the information stream outline of framework.
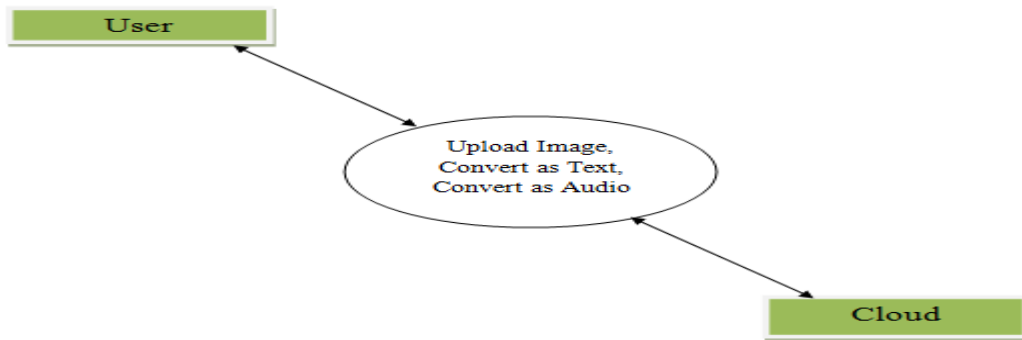
Figure 4.2: Data Flow Diagram

4.7.2 Sequence Diagram

The figure 5.1 demonstrates the grouping outline of the framework. The Sequence outline is utilized to portray some sort of associations among the diverse components of the model. The collaboration demonstrates the dynamic conduct of the framework. The motivation behind Sequence graph is to catch dynamic conduct of the framework, depicts the message stream in the framework and demonstrates the connection among items in the framework.
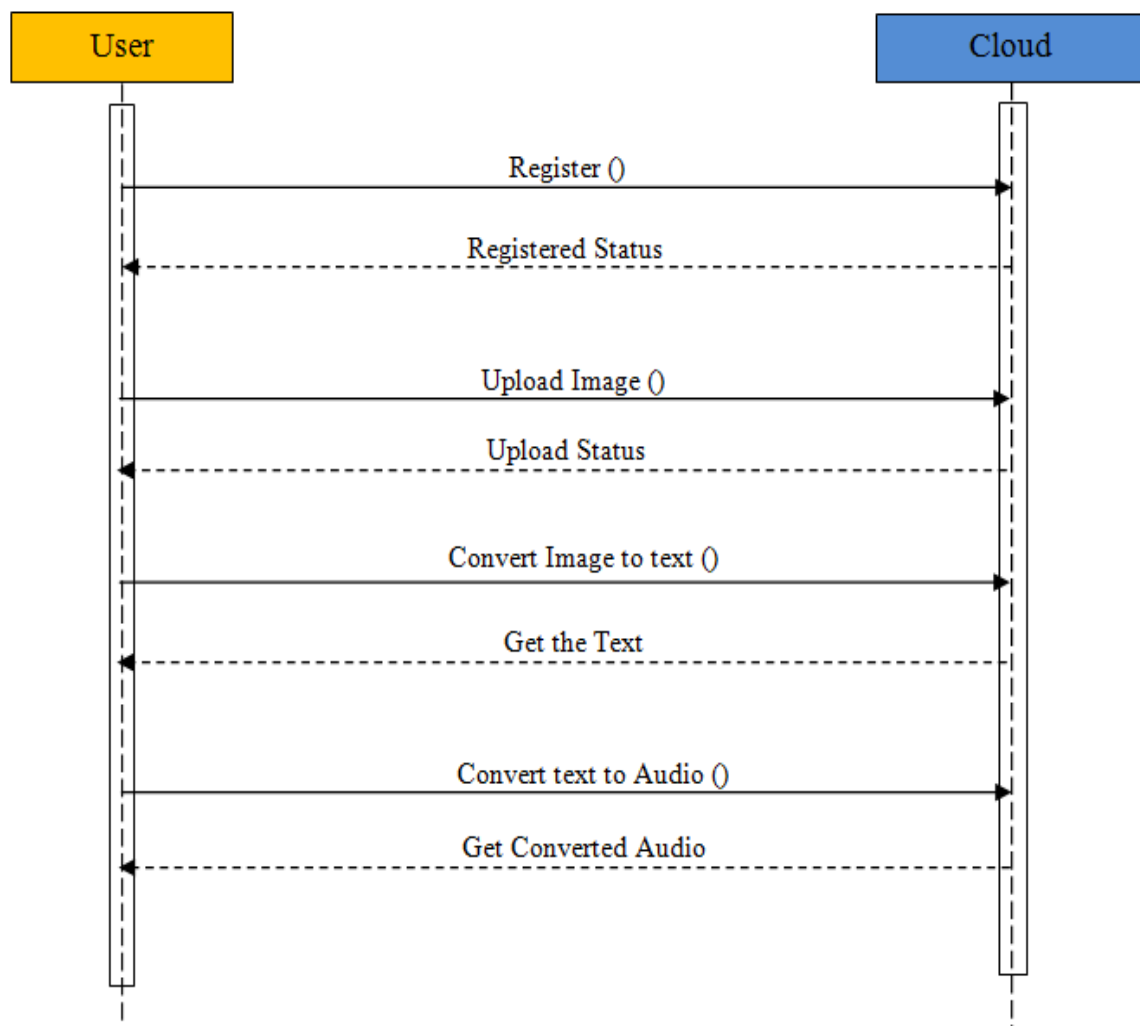

Figure 4.3: Sequence Diagram

4.7.3 Use Case Diagram

The figure 5.2 demonstrates the utilization case outline of the framework. The Use Case chart gets the dynamic direct of the structure. The motivation behind Use Case outline is to accumulate necessities of the framework, to recover framework outside elements, to recognize the variables affecting the framework furthermore it demonstrates the collaboration of the items inside the framework.
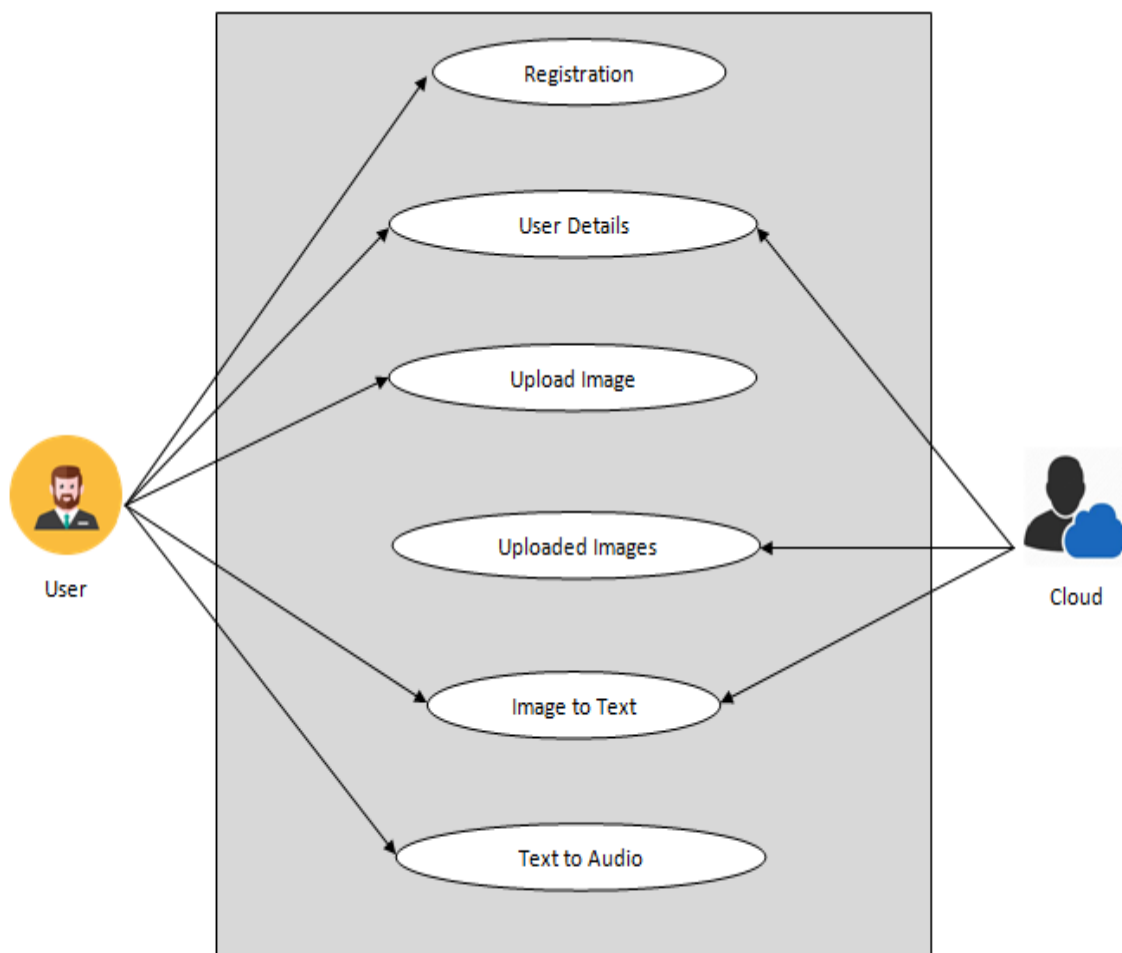
Figure 4.4: Use Case Diagram

4.7.4 Flow Chart

User Activity
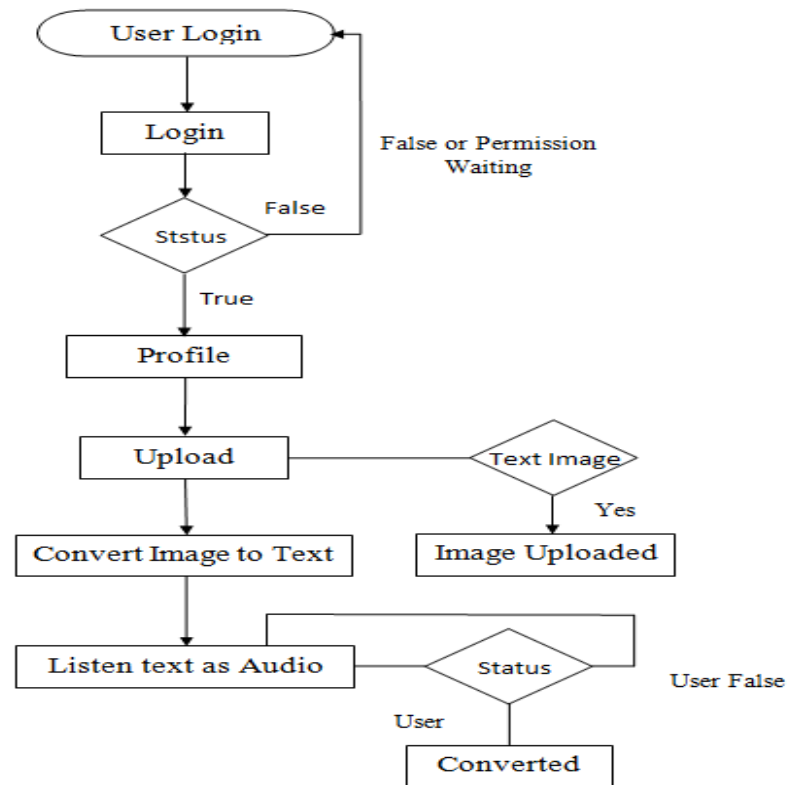
Figure 4.5: User Flow Chart

Cloud Login
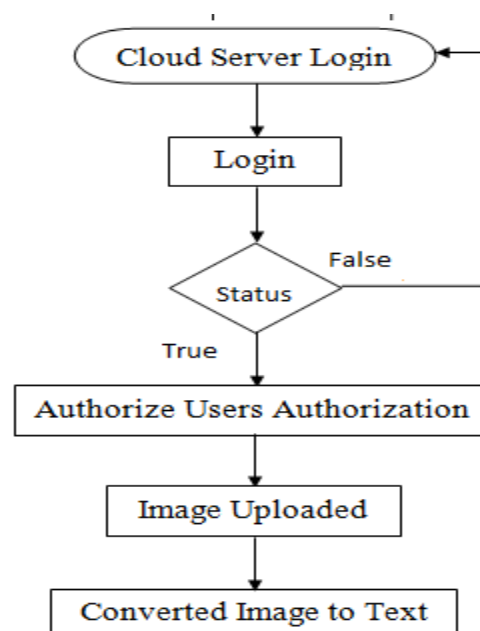
Figure 4.6: Cloud Flow chart

4.7.5 Class Diagram

The figure 4.7 demonstrates the class graph of the framework. Class layout is a graph showing a collection of classes and interfaces, close by the joint endeavors and associations among classes and interfaces. A class outline is a pictorial representation of the point by point framework plan. Plan specialists who comprehend the standards of displaying and planning frameworks outline the framework's class charts. A thing to recall is that a class outline is a static perspective of a framework. The structure of a framework is spoken to utilizing class charts. Class outlines are referenced consistently by the engineers while executing the framework.
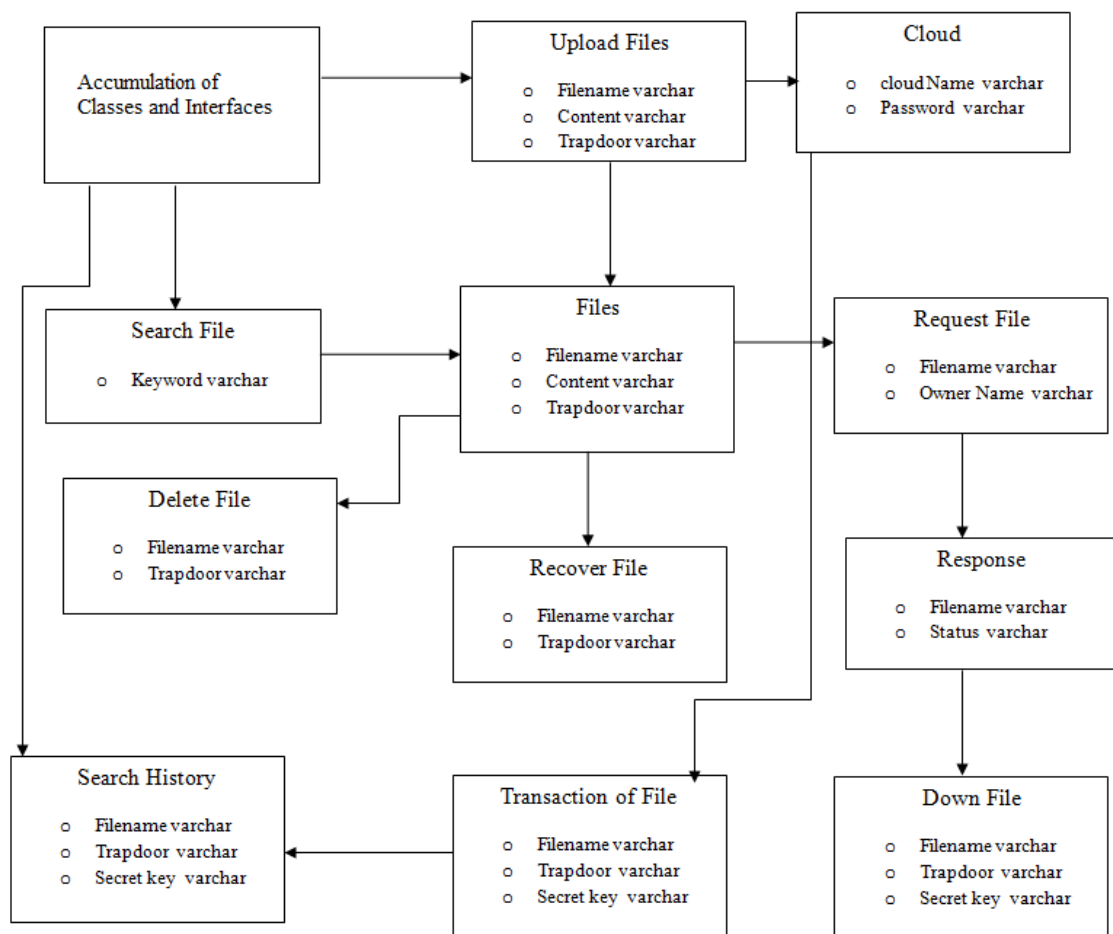
Figure 4.7: Class Diagram

4.8 Tools Specification

a) MySQL Database

MySQL is the world's most used open source social database organization structures that continue running as a server giving much customer access to different databases. The SQL stays for Organized Query Language. MySQL is an outstanding database used as a piece of web applications and is a central piece of the by and large used LAMP open source web application programming stack. Along these lines MySQL is similarly used as a piece of enormous scale World Wide Web things.

b) OCR (Optical character acknowledgment):

Optical character acknowledgment (additionally optical character peruse, OCR) is that the mechanical or electronic change of pictures of typewritten, composed or printed content into machine-encoded content, regardless of whether from a filtered archive, a photo of a report, a scene-photograph (for instance the content on signs and boards in an exceptionally scene photograph) or from subtitle content superimposed on a photo (for instance from a TV communicate). It's wide utilized as a sort of information section from composed paper learning records, regardless of whether identification archives, solicitations, bank proclamations, prepared receipts, business cards, mail, printouts of static-information, or any proper documentation. It's a standard procedure of digitizing composed messages so they will be electronically changed, sought, hang on extra briefly, shown on-line, and utilized in machine forms like mental component registering, counterfeit consciousness, (extricated) content to-discourse, key information and content mining.

OCR might be a field of examination in design acknowledgment, processing and pc vision. Early forms required to be prepared with photos of each character, and chipped away at one textual style at any given moment. Propelled frameworks equipped for assembling a high level of acknowledgment exactness for some text styles square measure right now normal, and with bolster for a scope of computerized picture record

organize inputs. A few frameworks square measure fit for imitating organized yield that intently approximates the underlying page together with pictures, sections, and option non-printed parts.

c) eSpeak

eSpeak utilizes a "formant amalgamation" strategy. This enables a few dialects to be given in an exceedingly modest size. The discourse is apparent, and may be utilized at high speeds, however isn't as normal or smooth as bigger synthesizers that square measure bolstered human discourse recordings.

eSpeak is accessible as:

• It is a summon arranged program to stand up the content from the a record or from

  STDIN.

• A shared library adaptation for use by different projects. (On Windows this is a DLL).

• A SAPI5: It is an adaptation for Windows which can be utilized with screen-peruses and distinctive projects which underpins the SAPI5 interface enemy windows frameworks.

4.9 LANGUAGE SPECIFICATION

a) Java

At first the lingo to be named as "oak" however retitled as "Java". Essential inspiration dialect requirement stage free (i.e., design unbiased) dialect utilized t0 make programming t0 inserted in different shopper elect0onic gadgets.

• It is software engineer's dialect.
• It is strong and reliable.
• Requirements forced by the space atmosphere, software engineer, full possession. At last, Java is the High level programming where C was to framework programming.

(b) Key Features of the Java Language

This was lingo rate of key parts for making server applications. These highlights consolidate,

(i) Simplicity

Java is a less perplexing vernacular used as a piece of server applications because of its anticipated necessity of the thing illustrate. The standard plan of class libraries gives compelling mechanical assemblies to Java architects on all Platforms.

(ii) Security

The design of Java byte codes and the JVM consider worked in instruments to watch that the Java two fold code is not changed.

(iii) Connectivity to Relational Databases

JDBC urges Java code to gain to and power data tenant in social databases.

(iv) No Pointers

Regardless of the way that Java holds a noteworthy piece of the thoughts of C in its sentence structure, it doesn't support pointer control. In this way all parameters are gone, except for primitive sorts by reference yet not by worth. Java particularly get to the pointer which discards memory debasement and breaks.

(v) Exception Handling

Java exceptional cases are articles. Java obliges fashioners to report which exceptions can be shurled by strategies in a particular class.

(vi) Automatic Storage Management

The Java virtual machine thus plays out all memory assignment and deallocation in the midst of venture execution. Or maybe, they depend on upon the JVM to perform operations, for instance, distributing memory when articles are made and deallocating

memory when the things are not any more referenced. This operation is known as garbage aggregation.

(vii) Portability

Java is adaptable transversely over different stages. It forms organize subordinate code and the undertakings are also simple to make that move reliably over machines.

(viii) Strong composition

The class of the thing should be announced before a java variable is used. Java's strong composition makes it possible to give a sensible and safe response for entomb dialect calls among java and SQL application and to organize java and SQL calls inside a similar application.

(xi) Flexible Namespace

Java describes classes and holds them inside a dynamic structure that mirrors the Web's zone namespace. The Java applications are flowed and name impacts are avoided. Java enlargements, for instance, the Java Naming and Directory Interface (JNDI) give a framework to different name organizations to be joined together.

(c) Java Development Kit

The JDK is a result of Sun Microsystems, Inc. Java Soft is the working organization of Sun that builds up the Java Development Kit.The JDK permits to create Java applications, create applets that will keep running in br0wsers supporting Java and future renditions of Netscape Navigator and Microsoft Internet Explorer.

The JDK offers the accompanying elements:

(i) Essential classes – Collections and Internationalization

(ii) Advanced GUI Building – 2D Graphics, sound and JavaBeans

(iii) Networking and Connectivity – JDBC, RMI, IDL, Servlets and Security

(iv) Packaging – JAR and the Extension Mechanism

(v) Advanced Language Topics – Java Native Interface and Reflection

(d) Java Runtime Environment

The Java2 Runtime Environment contains the accompanying:

1.   The Java virtual machine.

2.   Runtime class libraries.

3.   Java application launcher

The above instruments are important to run programs written in the Java programming dialect. It doesn't contain advancement devices, for example, compilers or debuggers and furthermore it does exclude improvement condition.

(e) Apache Tomcat

Apache Tomcat is an open source programming execution of the Java Servlets and Java Server Pages propels. The Java Servlets and Java Server Pages points of interest are made under the Java Community Process.

Apache Tomcat is delivered in an open and participatory condition and released under the Apache License interpretation 2. Apache Tomcat is believed to be a relationship of the all designers far and wide. Apache Tomcat fuses broad scale web applications over a varying extent of business undertakings and affiliations.

(f) JSP

These pages are a growth to the Java Servlet development that was delivered by Sun. JSPs has dynamic scripting limit that works with HTML code, dealing with the page basis from the static segments, blueprint and show of the page to make the HTML more helpful (i.e. dynamic database request).

JSP Life Cycle:

• Conversion: - (from JSP to java record i.e. Transforming into a servlet) – just once.

• Compilation: - (from .java record to .class archive) – just once.

• Instantiation: - (putting forth a servlet defense) – just once.

• Initialization: - jspInit() method (doing any instatement code) – just once.

• Service: - jspService() methodology (executing for every sales) –for every sales.

• Finalization:- jspDestroy() methodology (doing cleanup operation) – just once.

• Destruction:- destroying the servlet case just once.

(g) Extensible Markup Language (XML)

XML is an Extensible Markup Lingo that describes a course of action of rules for encoding records in an association which is human - understandable and machine-clear. The arrangement destinations of XML offer highlight to straightforwardness, comprehensive articulation and convenience over the Internet. XML is a printed data aggregate with strong support for preparing tongues of the world.

(h)Hyper Text Markup Language

This Language show was the vernaculars of the World Wide Web, grants clients offers organize sheets solidify substance, arrangement framework sheets (Hyperlinks). HTML is not an encoding language however rather use of ISO Standard 8879, The sense ahead this dialect as opposed to looking at content in unyielding straight structure, we can without a lot of an extend bob starting with one point then onto the accompanying point. We can examine through the data in light of our breathing space and inclination. A markup tongue is basically a development of parts, each delimited with amazing characters that depict how message or various things encased inside the sections showed up.

CHAPTER 5

IMPLEMENTATION

5.1 Pseudocode Codes

Controller

Controller part of the pseudocode provides various mechanisms for controlling various internal and external operations of the system.

- **Pseudocode for Access Controller**

This section of the pseudocode provides a mechanism for access control. Only the registered users can access the account and is able to communicate.

The AccessController class is used for access control operations and decisions.

More specifically, the AccessController class is used for three purposes:

- To decide whether an access to a critical system resource is to be allowed or denied, based on the security policy currently in effect,
- To mark code as being "privileged", thus affecting subsequent access determinations, and
- To obtain a "snapshot" of the current calling context so access-control decisions from a different context can be made with respect to the saved context.

A UserBean is a Java Bean that contain a set and get properties. Whenever we want to process a form that contain a fields, we have to get the values of the fields which are filled and submitted by user at client side, we use method request.getParamater   ("field name"); to retrieve the value of the fields.

Instead of writing that method we use the JSP UserBean tag. We   develop Bean Class with properties, and the name of the properties are same as like the names of the fields. So that when the form has submitted by user then the Bean will be populated by the values of the fields,   which fields names are matched to the properties of the Bean.

Begin

Public class AccessController

/*request mapping for access denied*/

@RequestMappoing(value="/accessDenied",method=requestMethod.GET)

Public String accessDenied()

Return "accessdenied";

/*request mapping for register*/

@RequestMapping (value="/register",method=RequestMethod.GET)

public String register User@ModelAttriibute("Command")UserBean userBean,

BindingResult result)

Return "register";

/*request mapping for report*/

@Request Mapping(value="/Value",method=RequestMethod.GET)

Public Model and view Valuereport@Modelattribute("Command")   UserBean

userbean,binding result result)

Map<String,Object>model>=new HashMap<String,Object>();

Model.put("attack Reports",reportService.get ValueAttackReport());

Return new Model And View("Valuereport",model);

End

- **Pseudocode for File upload controller**

This section of pseudocode explains how to implement a mechanism for file transfer between the communicating modules. After successful or unsuccessful transfer both the modules get the confirmation.

The model presents a placeholder to hold the information you want to display on the view. It could be a string, which is in your above example, or it could be an object containing bunch of properties.

Begin

Public class FileUploadController extends SimpleFormController

Private ReportService reportService;

/*requestmapping for send file*/

@RequestMapping(value="/sendFile",method=RequestMethod.GET)

Public ModelAndView fileupload@ModelAttribute("'command")fileUpload

fileUpload,Biding Result result,HttpServletRequest request)

/*declaration of variables for file upload*/

Begin for User user:userService.listUser())

Map.put(user.getLoginId(),user.getLoginId());

End for

Model.put("users",map);

For(Node node:nodeService.listNode())

Map1.put(node.getNodeName(),node.getNodeName());

End for

Model.put("nodes",map1);

Model.put("filesupload",new FileUpload());

Model.put("files verify",fileService.getfileverify(fileID));

Model.put("files Update ",FileService.getFileUpload(FileID));

Return new Model And View("FileUploadForm:,model);

/*request mapping for success upload*/

@RequestMapping(value="/uploadSuccess",method=RequestMethod.POST)

End

- **Pseudocode for Login Logout Controller**

This section of the pseudocode provides a mechanism for user login and logout. This part Also provides mechanism for generating captcha. Each time a registered user logs in his email id will be validated.

/*Handles and retrieves the login or denied page depending on the URI template*/

Begin

@requestMapping("/auth")

Public class LoginLogoutContrloller

@Requestmapping(value="/captcha")

Public void generateCaptcha(HttpServletrequest request,HttpServletresponse response,httpSession session)

@RequestMapping(value="/login-user")

If user1!=null

Return "home-page";

If submit!=null

LoginValidator validator=new LoginValidator();

Validator.validate(loginForm,Model1);

If model1.hasErrors()

LoginForm.setUserId("");

```
                    LoginForm.setpassword("");

                    Logger.debug(model1.getAllErrors());

                    Return "login-page";

@RequestMapping (value="/forgot-pwd")

Public string loginUser(ModelMap model,LoginForm loginform,BindingResult
model1,http

ServletRequest request,Httpsession session)

          String submit=request.getparameter("submit");

          Logger.debug("submit:"+submit);

          If submit!=null

                    Email Vlidator validator=new EmailValidator();

                    Validator.validate(loginform,moodel1);

          End if

                    System.out.println("test");

                    Return "forgot-if model1.hasErrors

                    Loginform.setemailId("");

                    Logger.debug(model1.getAllErrors());

                    Return "forgot-pwd";

          Else if (loginform.getEmailId()!=null)

          User user=service.updateuser(LoginForm);

          If user!=null

                    emailService.sendforgotPasswordMail(loginForm);

                    return "forgot-pwd-sent";

                    end if

          /*handles and rereives the login JSP page*/

     @RequestMapping(value="//login",method =RequestMetod.GET)

          Logger.debug("Received request to sgow login page");

     /*Add an error  message to the model if login is unsuccessful*/

     /*The 'error' parameter is set  to true based on the when  the authentication has
failed*/

          We declared this under the  authentication-failure-url attribute unside the  spring-
security.xml

          <form-login
```

Login-page="/naveen/auth/login"

Authentication-failure-url="/naveen/auth/login?error=true"

Default-target-url="/naveen/main/common"/>

If error=true

/*Assign an error message*/

Model.put("error","you have entered an invalid username or password!");

Else

Model.put("error","");

End if

/This will resolve to /WEB-INF/jsp/loginpage.jsp/

Return "loginpage";

//handles and retrieves the denied JSP page.This is shown whenever a regular

- **User**

Tries to access an admin only page

@RequestMapping (value ="/denied",method=Requestmethod.GET)

Public String getDeniedPage()

Logger.debug("Receive request to show denied page");

/*This will resolve to/WEB-INF/jsp/deniedpage.jsp*/

Return "deniedpage";

End

Chapter 6

System Testing

6.1 Validation Testing

Testing is completed at various levels each going for checking the distinctive parts of the item and its components. The different levels of testing incorporate Unit testing which concentrates on a specific module, Integration testing which is the following level testing process done to check the communication between the modules after they are being coordinated into different subsystems lastly System testing is performed at the largest amount to check whether the framework all in all meets the prerequisites determined.

- **Unit Testing**

The principal test in the advancement procedure is the unit test and performed by the person designer. The source code is regularly partitioned into modules and further separated into littler units. Every unit has particular conduct and tried independently. Along these lines this testing strategy is called unit testing.

- **Integration Testing**

Blend testing is planned to test composed programming parts that is, aggregate system. Joining testing is performed with the basic consequence of screens or fields. Joining tests demonstrate that the mix of fragments is correct and unsurprising. Mix testing is especially striven for revealing the issues that rise up out of the mix of parts.

- **System Testing**

The inspiration driving testing is to perceive botches. Testing is the technique of recognizing inadequacy or weakness in the system. System Testing checks the value of fragments, sub parts or the total structure. System Testing is done with the objective of ensuring that the attempted structure meets customer necessities and seeks and does not fail in an unacceptable way. In this manner our endeavor encounters this testing all things considered it gives yield without botches. Thusly the structure testing is done adequately.
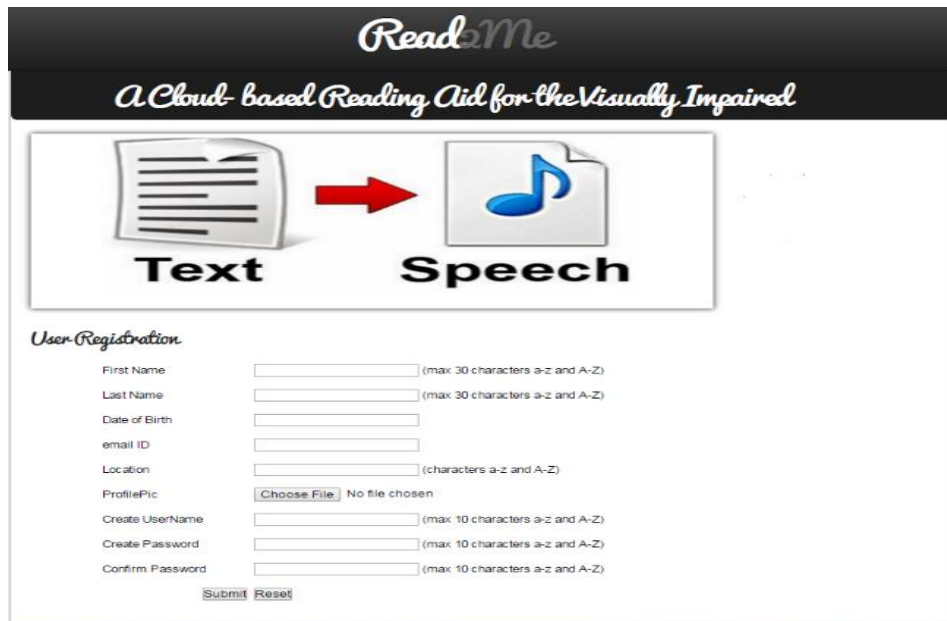
6.2 Test Cases

Sl. no	Scenario	Action	Expected Result	Actual Result	Status
1	User Registration	Enter invalid Details	System should display error message	As Expected	OK
2	User Registration	Enter Valid Details	System should display successful message	As Expected	OK
3	User Login	Enter invalid details and click on login button	System should display error message	As Expected	OK
4	User Login	Enter Valid details and click on login button	System should display successful message	As Expected	OK
5	Cloud Login	Enter invalid details and click on login button	System should display error message	As Expected	OK
6	Cloud Login	Enter Valid details and click on login button	System should display successful message	As Expected	OK

Chapter 7
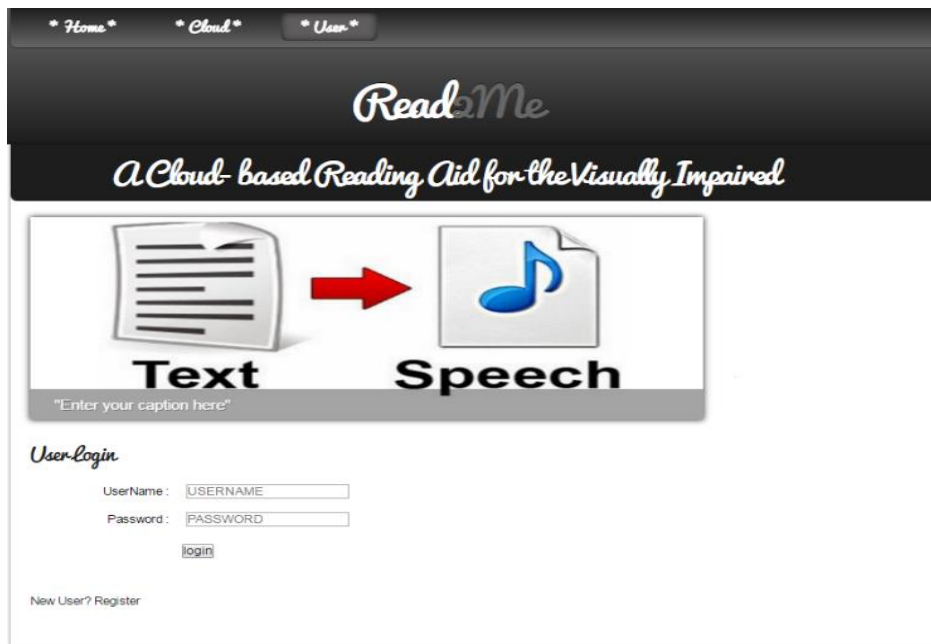
Results and snapshots

7.1 Web User

Figure 7.1 User Registration

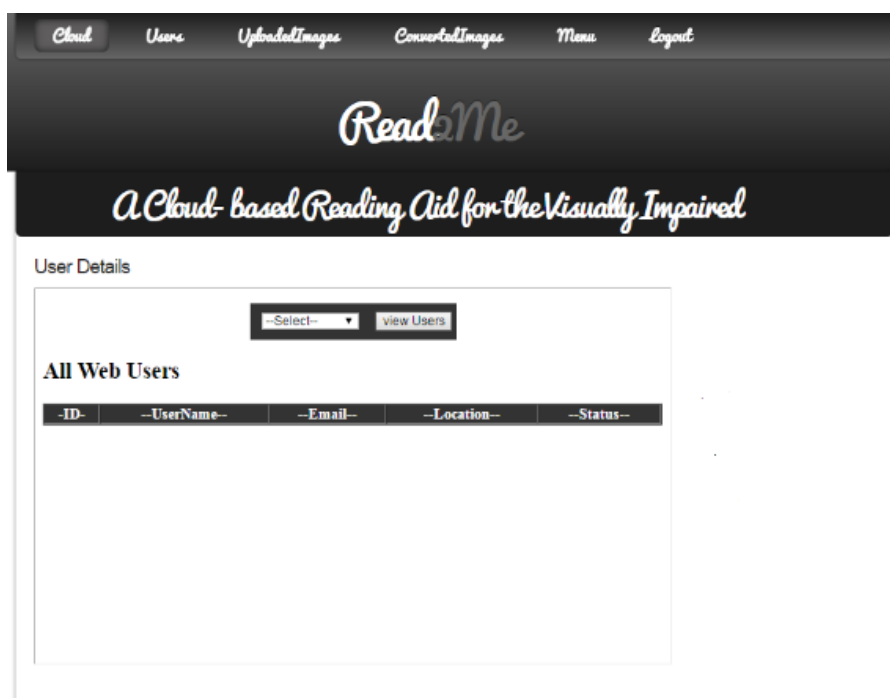**Figure 7.2 User Login**

Figure 7.3 Cloud Login

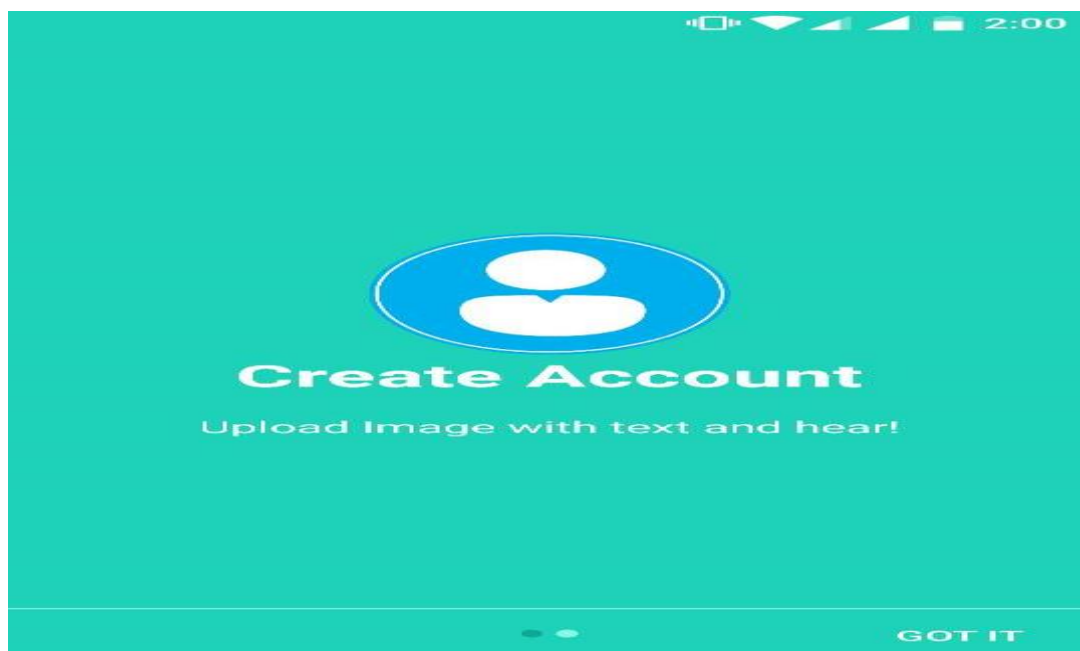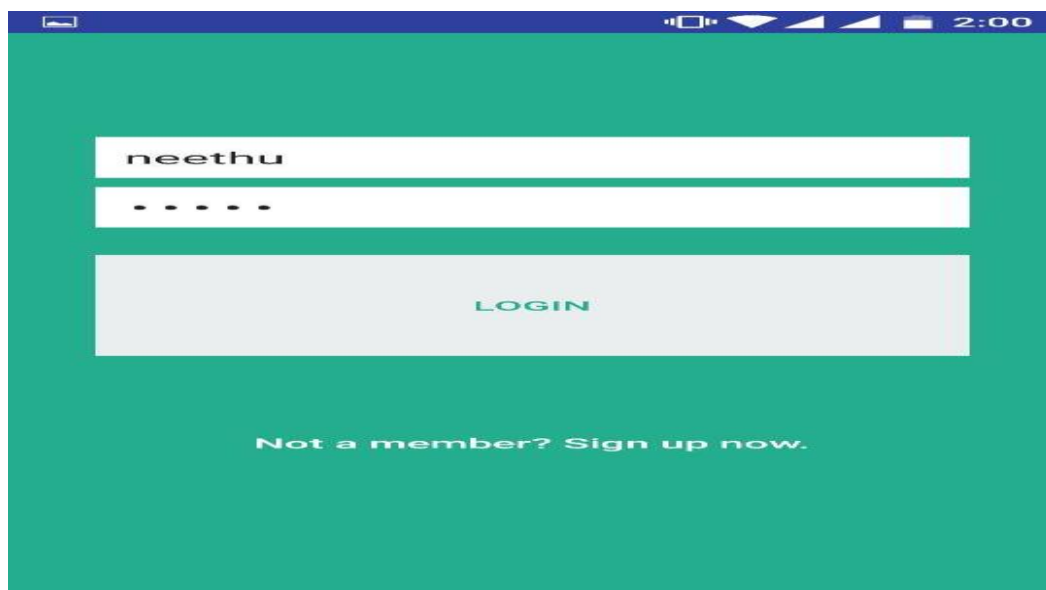**Figure 7.4 User Details**
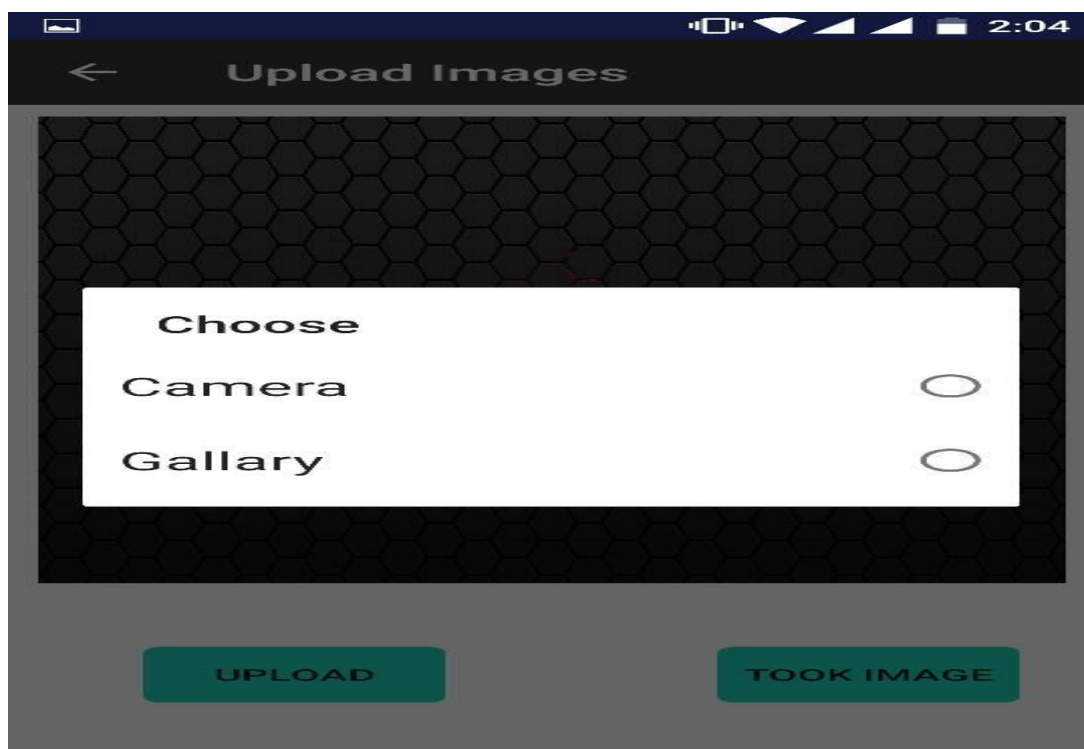
7.2 Android User

Figure 7.5 Create New Account

Figure 7.6 User Login

Figure 7.7 Selection of Image

Figure 7.8 User Profile Chapter 8

CONCLUSION

Propose an assistive framework to peruse printed message on objects for helping blind people. To take care of the normal issues of visually impaired individuals we have proposed a strategy in which the visually impaired individuals will tap the picture. This technique can viably isolate the objects of enthusiasm from complex foundation and different protests in the camera see OCR is utilized to perform word acknowledgment of the confined content areas and change into sound yield for daze individuals. In any case, the exactness of the versatile in the transformation endeavors is better, principally because of the high determination camera worked in the gadget.

REFERENCES:

[1] World health organization official website. August 2014. [Online]. Available at http://www.who.int/mediacentre/factsheets/fs282/en. Accessed on March 4, 2015.

[2] R. Keefer., & N. Bourbakis. 'Interaction with a Mobile Reader for the Visually Impaired'. 21st IEEE International Conference with Artificial Intelligence Tools. 18.03 (2009): 229-236. Web.

[3] R.Neto. &N.Fonseca. 'Camera Reading for Blind People'. Available at http://www.sciencedirect.com/science/article/pii/S2212017314003624

[4] Nagaraja L, et al, "Vision based text recognition using raspberry PI", *National Conference on Power Systems & Industrial Automation (NCPSIA 2015).*

[5] Nagarathna, Sowjanya V, M. "Product label readin system for visually challenged people", International journal of Computer Science and Information Technology Resreach, Vol 3, Issue 2, 2015.

[6] M. Jeon, A. Ayala-Acevado, N. Nazneen, B. Walker, O. Akanser, '"Listen2dRoom": Helping Blind Individuals Understand Room Layouts' in CHI '12 Extended Abstracts on Human Factors in Computing Systems, Austin, TX, U.S.A., 2012, pp. 1577 – 1582.

[7] "Tesseract-OCR," 2015. [Online]. Available: https://code.google.com/p/tesseract-ocr/. [Accessed 28 Oct 2015].

[8] Abbyy.technology, 'Supported OCR Text/Print Types https://abbyy.technology/en:features:ocr:supported_ocr_text_types.