

# MOBILE BASED OPTICAL CHARACTER RECOGNITION AND TEXT-TO-SPEECH SYSTEM

## Mini Project Report

Submitted by

**Hima M H**

*Submitted in partial fulfillment of the requirements for the award of  
the degree of*

*Master of Computer Applications Of  
A P J Abdul Kalam Technological University*



FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)®  
ANGAMALY-683577, ERNAKULAM(DIST)  
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## **DECLARATION**

I, **Hima M H**, hereby declare that the report of this project work, submitted to the Department of Computer Applications, Federal Institute of Science and Technology (**FISAT**), Angamaly in partial fulfillment of the award of the degree of Master of Computer Application is an authentic record of my original work.

The report has not been submitted for the award of any degree of this university or any other university.

**Date : 04-03-2022**

**Place: Angamaly**

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**DEPARTMENT OF COMPUTER APPLICATIONS**



**CERTIFICATE**

This is to certify that the project report titled "**Mobile Based Optical Character Recognition And Text-To-Speech System**" submitted by **Hima M H** towards partial fulfillment of the requirements for the award of the degree of Master of Computer Applications is a record of bonafide work carried out by them during the year 2021.

**Project Guide**

**Head of the Department**

Submitted for the viva-voice held on ..... at .....

**Examiner1 :**

**Examiner2 :**

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## **ABSTRACT**

Mobile Based Optical Character Recognition And Text-To-Speech System is an android based mobile application contains OCR and TTS for English languages as single product by resolving problems in existing systems. In order to make the proposed system,it develop a text from an image by OCR system ,then develop text recognition software that can be gotten from an image or even directory written into text editor system,it read the text contained in the text editor by using Speech Recognition System and develop the above system to exist on a programmable OCR such that it operates independently of an external computing source, and interacts with its software inputs and outputs independently. This is easier, portable and faster solution comparing to the existing systems which are made for visually impaired. While they are no replacement for a screen reader on a desktop or laptop computer these smartphone apps are a handy accessory. We can encrypt the scanning images with password. The algorithm used in this project is Advanced Encryption Standard. Now-a-days Machine learning has become one of the peak of technology. Previously it was not possible to compute data at higher or faster rate, with the help of leading technology it is now possible to process data at higher rate to get optimized hence better result. Pattern recognition, a branch in machine learning is/can be helpful in many different ways. OCR is used to recognition of character with high accuracy. Using handheld mobile device camera for capturing an image of a printed or handwritten document to generate text from the same. On global scale there are billions of android devices running. With the help of android device and android text to speech we can convert text into an effective accurate speech optimally.

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# **Chapter 1**

## **INTRODUCTION**

The first step in the system study includes analysis of the system. System analysis involves studying the way an organization currently receives and processes data to produce information with the goal of determining how to make it work better. System analysis includes both a preliminary and a detailed stage. During preliminary analysis the analysis takes a quick look at what is needed and whether it benefits the perceived want. Detailed analysis includes an in-depth look at what is wanted and contains more refined cost and benefits studies. The preliminary analysis begins when someone perceives a problem, modifications to existing, repairs to an existing system or demands an entirely new system. The analyst summarizes the gained modifications, including personal requirements and potential benefits of the new system in formal report called the preliminary report. Detailed analysis expands the preliminary efforts to include the complete analysis of all possible alternative solutions to the problem and complete expansion of what appears to be the most practical solution..

The system study is the process of gathering and interpreting facts, using this information for further studies on the system. It does various feasibility studies. In these studies, a rough figure of the system activities can be obtained, from which the decisions about the strategies to be followed for effective system study and

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analysis can be taken. The system study also identifies the method collection to be followed. The system study conducted an initial picture about the system working was got. From the information got from the study, the data collection methods are identified. Even in the first investigation itself drawbacks of the existing system could be identified.

Analysis involves the requirement determination and specifications. Basically, it involves establishing for all the system elements and then mapping these requirements to the software form. The analysis is intended to capture and describe all the requirements of the system and to make a model that defines a key domain class in the system. The purpose is to provide an understanding and to enable a communication about the system between the developers and the people establishing the requirements. Therefore, the analysis is typically terms of code or programs during this phase; it is the first step towards really understanding the requirements.

# **Chapter 2**

## **SYSTEM ANALYSIS**

### **2.1 EXISTING SYSTEM**

In existing Optical Character Recognition systems the printed text is converting into a computer readable text. In Text-To-Speech systems, the converted text is again converted into an audio output which can be directly given to human ears. When consider about the today's market the existing Optical Character Recognition and Text-To-Speech systems for English are computer based online and offline systems. Currently both Optical Character Recognition and Text-To-Speech system are available as two separate applications. There is no mobile based product available in the current market either as an Optical Character Recognition or Text-To-Speech system, which means there is no mobile based application available for the visually impaired and illiterate people to read English. Disadvantage of this existing system is we cannot encrypt the scanning images with password.

### **2.2 PROPOSED SYSTEM**

The proposed system is an android based mobile application contains Optical Character Recognition and Text-TO-Speech for English languages as sin-

gle product by resolving problems in existing systems. In order to make the proposed system, it develops a text from an image by Optical Character Recognition system, then develops text recognition software that can be gotten from an image or even directory written into text editor system, it reads the text contained in the text editor by using Speech Recognition System and develops the above system to exist on a programmable Optical Character Recognition such that it operates independently of an external computing source, and interacts with its software inputs and outputs independently. This is easier, portable and faster solution comparing to the existing systems which are made for visually impaired. While they are no replacement for a screen reader on a desktop or laptop computer these smartphone apps are a handy accessory. We can encrypt the scanning images and documents with password. The algorithm used in this project is Advanced Encryption Standard. Advantage of this proposed system is we can encrypt the scanning images and documents with password and auto image capturing is possible, so already saved images or clicked images are not required for scanning.

## **2.3 SYSTEM SPECIFICATION**

A software requirement specification (SRS), a requirements specification for a software system, is a complete description of the behavior of a system to be developed and may include a set of use cases that describe interactions the users will have with the software. In addition, it also contains non-functional requirements. Non-functional requirements impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints) The software requirements specification document enlists all necessary requirements that are required for the project development. To derive the requirements, we need to have clear and thorough understanding of the products to be developed. This is prepared after detailed communications with the project team and customer.

Main Processor	Intel corei3 or above
RAM	8GB or Above
Keyboard	Standard 108 keys
Mouse	3D Optical mouse
Monitor	15"Standard
Hard Disk	10GB of available disk space minimum or Above

## **2.4 SOFTWARE SPECIFICATION**

The selection of hardware is very important in the existence and proper working of any software. When selecting hardware, the size and capacity requirements are also important. Below are some of the hardware that is required by the system.

Operating System	64-bit Microsoft® Windows® 8/10
Programming Language	Java
Scripting Language	JSP
Frontend	Android
Backend	PHPADMIN
RDBMS	MYSQL

## **2.5 HARDWARE SPECIFICATION**

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatible, and sometimes incompatible hardware devices for a particular operating system or application. We require much different software to make the application which is in making to work efficiently. It is very important to select the appropriate software so that the software works properly.

# **Chapter 3**

## **IMPLEMENTATION**

The implementation phase of the software development is concerned with translating design specification into source code. The user tests the developed system and changes are made according to their needs. Our system has been successfully implemented. Before implementation several tests have been conducted to ensure that no errors are encountered during the operation. The implementation phase ends with an evaluation of the system after placing into the operation for a period of time. The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from old system to new system. The system can be implemented only after testing is done and is found to be working to specifications. The implementation stage is a systems project in its own right. The implementation stage involves following tasks:

- • Careful planning.
- Investigation of system and constraints.
- Design of method to achieve changeover.
- Evaluation of the change over method.

## **3.1 TOOLS AND PLATFORM**

### **FRONT END:ANDROID**

Android is a Linux based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers. Android is open source and Google releases the code under the Apache License. This open-source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. Additionally, Android has a large community of developers writing applications that extend the functionality of devices, written primarily in a customized version of the Java programming language. Android is an open-source mobile operating system that combines and builds upon parts of many different open-source projects.

Android's kernel is based on the Linux kernel and has further architecture changes by Google outside the typical Linux kernel development cycle. Android does not have a native Window System nor does it support the full set of standard GNU libraries, and this makes it difficult to port existing Linux applications or libraries to Android. Android's user interface is based on direct manipulation using touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching and reverse pinching to manipulate on-screen objects. Android devices boot to the home screen, the primary navigation and information point on the device, which is similar to the desktop found on PCs. Android home screens are typically made up of icons and widgets; icons launch the associated app, whereas widgets display live, auto updating content such as the weather forecast, the user's email inbox, or a news ticker directly on the home screen.

[1] Graphical user interfaces

[2] Web frameworks

[3] Multimedia

[4] Database

[5] Networking

## **ABOUT JAVA**

Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. Java applications are typically compiled to byte code that can run on any Java virtual machine (JVM) regardless of computer architecture. As of 2016, Java is one of the most popular programming languages in use, particularly for client-server web applications, with a reported 9 million developers. Java was originally developed by James Gosling, a Canadian, at Sun Micro systems (which has since been acquired by Oracle Corporation) and released in 1995 as a core component of Sun Micro systems' Java platform. The language derives much of its original features from Small talk, with a syntax similar to C and C++, but it has fewer low-level facilities than either of them.

The original and reference implementation Java compilers, virtual machines, and class libraries were originally released by Sun under proprietary licenses. As of May 2007, in compliance with the specifications of the Java Community Process, Sun relicensed most of its Java technologies under the GNU General Public License. Others have also developed alternative implementations of these Sun technologies, such as the GNU Compiler for Java (byte code compiler), GNU

Class path (standard libraries), and Iced Tea-Web (browser plugin for applets).

The latest version is Java 11, released on September 25, 2018. Java 11 is a currently supported long-term support (LTS) version ("Oracle Customers will receive Oracle Premier Support"); Oracle released for the "legacy" Java 8 LTS the last "public update", which is free for commercial use, in January 2019. Oracle will still support Java 8 with public updates for personal use up to at least December 2020. Oracle (and others) "highly recommend that you uninstall older versions of Java", because of serious risks due to unresolved security issues. Since Java 9 is no longer supported, Oracle advises its users to "immediately transition" to Java 11. Oracle extended support for Java 6 ended in December 2018.

## **ABOUT MYSQL**

MySQL is a relational database management system (RDBMS) which is more than 11 million institutions. The program runs as a server providing multi-user access to a number of databases. MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now a subsidiary of Sun Microsystems, which holds the copyright to most of the code base. The project's source code is available under terms of the GNU General Public License, as well as under a variety of proprietary agreements.

## **SELECTION OF OPERATING SYSTEM**

Windows10 an Overview Windows 10 includes improved network, application and Web services. It provides increased reliability and scalability, lowers your cost of computing with powerful, flexible management services, and provides the best foundation for running business application.

Network Data Security-Network data can be protected on the wire or at the network interface. Securing data at the network requires a firewall to proxy services and mediate connections between the internal network, (LAN) and external network (Internet). This is the purpose of Proxy Server.

Internet Protocol Security-Internet Protocol Security (IPsec) is a framework of open standards for ensuring secure private communications over Internet Protocol networks, using cryptographic security services

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## **3.2 INPUT DESIGN**

Input design is the process of converting user-oriented input to a based format. Inaccurate input data are the most common cause of errors in data processing. Errors entered by data entry operators can be controlled by input design. The goal of designing input data is to make data entry as easy, logical and free from errors. When we approach input data design; we design the data source documents that capture the data and then select the media used to enter them into computer.

User-friendly screen format can reduce the burden on end users, who are not highly proficient in computers. An important step in input design stage is a design of source document. Source document is the form in which the data can initially capture. The next step is the design of the document layout. In the layout organizes the document by placing information, where it will be noticed and establishes the appropriate sequence of items. User interface design is very important for any application. The interface design describes how the software communicates within itself, to system that interpreted with it and with humans who use it. The input design is the process of converting the user-oriented inputs into the computer-based format. Input design is apart of overall system design, which

requires very careful attention. If data going into the system is correct, then the processing and output will magnify these errors. Thus, the designer has a number of clear objectives in the different stages of input design

- 1. To produce a cost-effective method of input.
- 2. To achieve the highest possible level of accuracy.
- 3. To ensure that input is acceptable to and understand by the user.

In accurate input data is most common cause of data processing errors. If poor input design-particularly where operators must enter data from source documents-permits bad data to enter a computer system, the outputs produced are of little value. The input design process was initiated in the study phase were, as a part of the feasibility study:

- 1 Input data were found to be available for establishing and maintaining master and transaction files and for creating output records  
The most suitable types of input media,for either off-line or on-line devices were selected after a study of alternative data capture techniques

The data is fed into the system using simple inactive forms. The forms have been supplied with messages so that the user can enter data without facing any difficulty. This data is validated where verity requires in the project. This ensures that only the correct data have been incorporated into system. The goal of designing input data is to make the automation as easy and free from errors as possible. For providing a good input design for the application easy data input and selection features are adopted. The input design requirements such as user friendliness,consistent format and interactive dialogue forgiving the right messages for the user at the right time are also considered for development for this project.

### **3.3 OUTPUT DESIGN**

Computer output is the most important and direct source of information to the user. Efficient and intelligent output design improves the system's relationship and helps user decision-making.

In the output design it is determined how the implementation is to be played for immediate need and also the hard copy output. A major form of input is a hard copy from the printer. Print-outs should be designed around the output requirement of the user. Printers, CRT screen display are the examples for providing computer-based output. The output design associated with the system includes the various reports of the table generations and query executions. A quality output is one, which meets the requirements of end user and presents the information clearly. In any system result of processing are communicated to the user and to the other system through outputs. In the output design it is determined how the information is to be displayed for immediate need. It is the most important and direct source of information to the user. Efficient and intelligent output design improves the system's relationships with the user and helps in decision-making.

The objective of the output design is to convey the information of all the past activities, current status and to emphasize important events. The output generally refers to the results and information that is generated from the system. Outputs from computers are required primarily to communicate the results of processing to the users. Output design is one of the most important features of the information system. The logical design of an information system is analogous to an engineering blue print of an automobile. It shows the major features and how they are related to one another. The outputs, inputs and databases are designed in this phase. At the beginning of the output design various types of outputs such as external, internal, operational, and interactive and turnaround are defined. Then the format, content, location, frequency, volume and sequence of the outputs are specified. The content of the output must be defined in detail. The system analysis

has two specific objectives at this stage.

- To interpret and communicate the results of the computer part of a system to the users in a form, which they can understand, and which meets their requirements.
- To communicate the output design specifications to programmers in a way in which it is unambiguous, comprehensive and capable of being translated into a programming language.

### **3.4 DATABASE DESIGN**

The Database design is the process of producing a detailed data model of a database. The logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributes for each entry. The term database design can be used to describe many different parts of the design of an overall data base system. Principally, and most correctly, it can be thought to fast the logical design of the base data structures used to store the data. In the relational model, these are the tables and views. In an object data base, the entities and relationships map directly to object classes and named relationships. However, the term data base design could also be used to apply to the overall process of designing, not just the base data structures, but also the forms and queries used as part of the overall data base applications within the database management system.

## **3.5 MODULE**

### **3.5.1 USER MODULE**

There are stages and steps in which the user can use the system and functionalities where the system can perform its own tasks. An actor is nothing but the use of the system / application. There are two easy ways by which user can interact with the system, also there are two main functionalities by which system comes into a picture. Initially the user will start the app. The rear camera is kept open by default in the system, so that it is easy for users to use the system without much hurdle. The actor will scan hardcopy document by the camera of this android device phone. The scanned image can be anything like printed or handwritten document. Once there is image in front of the screen the system functionality come into picture. The system will try to identify and generate the text from the image that is provided to the OCR engine. Once the user sees the detected text and is converted into a machine identified and generated text, the actor has choice to select the text he desired. Once the actor selects the block of identified text it is considered as an input to the text-to-speech. The another functionality of the system comes into picture and the system will convert the text into an effective speech.

## **3.6 DIAGRAMS**

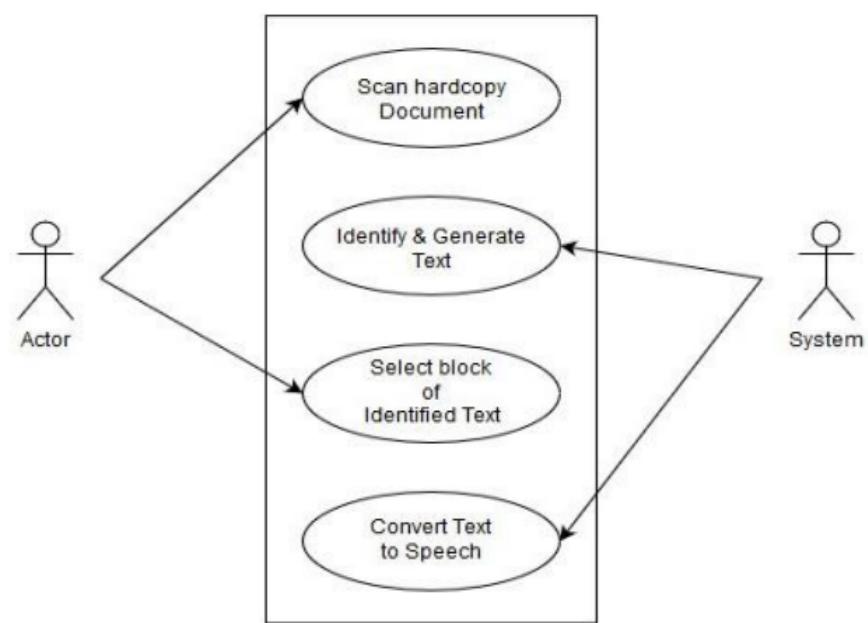


Fig. 1. Functional use of system

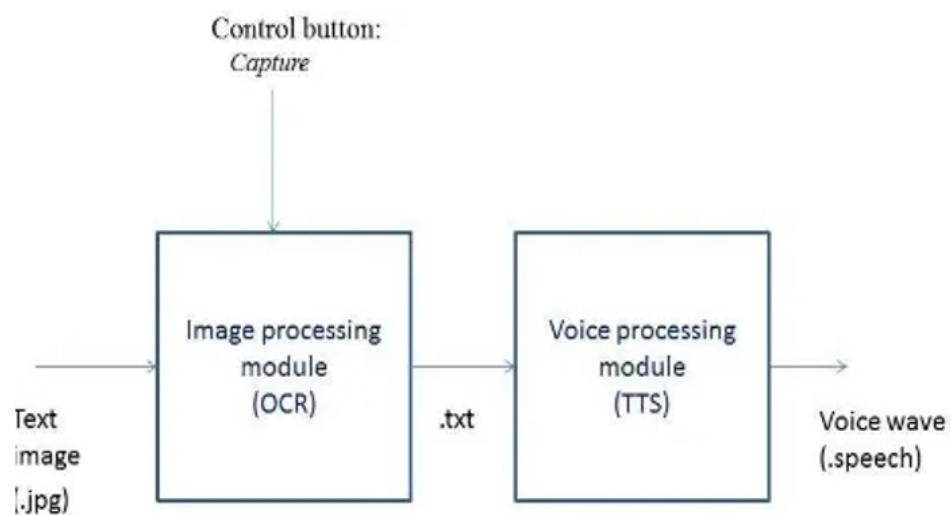
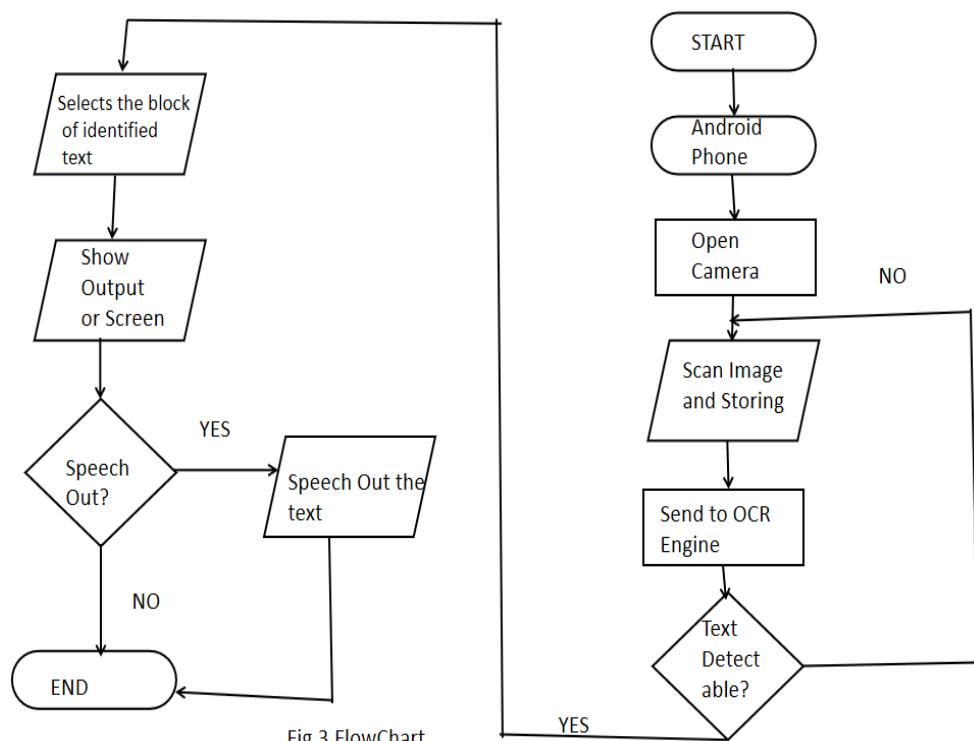


Fig. 2.Block Diagram



# **Chapter 4**

## **TESTING AND VALIDATION**

### **4.1 TESTING**

Testing is an import and stage in the software development life cycle. System testing is a critical element of a software quality assurance and represents the ultimate review of specification, design and coding. Importance of software testing and its simplification with software quality cannot be over emphasized. Testing is one-way developers can validate the quality of a software product and verify that it fully meets the specification. During testing, the system is tested with a set of cases and checked whether the input of the program is performing as it is expected. The system is tested and reviewed to ensure that the entire user requirement has been satisfied. Testing was done throughout the system development at various stages since it is always a good practice to test the system at many different levels at various intervals that is subsystems, program modules as work progress and finally the system as a whole. If this is not done, then the poorly tested system can fail after installation. Testing is a very tedious and time-consuming job. For a test to be successful the tester should try and make the program file. Each test is designed with the intention of finding errors in the way system will process

it.Though testing of a program doesn't guarantee the reliability of the system,it is done to assure that the system runs errors free.The Testing process begins by developing a comprehensive plan to test the general function-laity and special features on a variety of platform combinations. Strict quality control procedures are used.The Process verifies that the application meets the requirements specified in the system requirements document and is bug free. At the End of each testing day, the summary of completed and failed tests is prepared. And the Application is redeveloped and retested until every item is resolved. All the changes and retesting are tracked through spread sheets. Applications are not allowed to launch until all identified problem are fixed. Finally, a report is prepared at the end of testing to show exactly what was tested and to list the final outcomes. The software testing methodology is applied in four distinct phases:

- • Unit Testing
- Integration Testing
- User Acceptance Testing
- Output Testing

#### **4.1.1 UNIT TESTING**

Developers typically do unit testing in order to trace out bugs in each module of the code. Unit testing is done in parallel with coding. It includes testing each function and procedures. Unit testing is also called as module testing.In module testing each module are tested for any possible logical error. They are also tested for specification to see if they are working as per the program should do and they are tested under various conditions.Each module is being tested thoroughly in order to discover pitfalls.Specification testing examines the specification what the program should do and how it should perform under various conditions.The testing will be done by entering data into different tables using forms. The data with

less validation will be tested first. Whenever an error is encountered, an informative error message will be displayed which informs user about the type of error. After the completion of form testing the program will be tested. The unit testing is done to identify

- The image entries are in the correct format.
- No duplicate entries are present.
- To check whether it provides the required result.

#### **4.1.2 INTEGRATION TESTING**

Integration testing is any type of software testing that seeks to verify the interfaces between components against a software design. Software components may be integrated in an iterative way or all together ("big bang"). Normally the former is considered a better practice since it allows interface issues to be located more quickly and fixed. Integration testing works to expose defects in the interfaces and interaction between integrated components (modules). The task of the integration test is to check that components or software applications, interact without error. Therefore, testing the data flow between 2 modules is integration testing.

#### **4.1.3 USER ACCEPTANCE TESTING**

User acceptance testing is done by the user to check whether the project has met the requirement that has been mentioned at the beginning of the project. Flood

alert is tested by the user by inputting values and the result generated is also validated. If the accuracy is as expected user approve the system

#### **4.1.4 OUTPUT TESTING**

After performing the validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the required output in the specific format. The output generated or displayed by the system under consideration is tested asking the users about the format required by them. Here, the output is considered in two ways, one is on the screen and other is printed format. The output format on the screen is found to be correct as the format designed according to the user needs. For the hard copy also, the output comes out as specified by the user. Hence output testing does not result in any connection in the system.

### **4.2 VALIDATION CHECK**

The validation phase reveals the failures and the bugs in the developed system. It will become to known about the practical difficulties the system faces when the operated in the true environment. Validation is the process of ensuring that user input is clean, correct, and useful. Typical validation tasks are:

- Has the user filled in all required fields?
- Has the user entered a valid email?

- Has the user entered text in a numeric field?

Form validation normally used to occur at the server, after the client had entered all the necessary data and then pressed the submit button. If the data entered by a client was incorrect or was simply missing, the server would have to send all the data back to the client and request that the form be resubmitted with correct information. This was really a lengthy process which used to put a lot of burden on the server. Most often, the purpose of validation is to ensure correct user input. Validation can be defined by many different methods, and deployed in many different ways. Server-side validation is performed by a web server, after input has been sent to the server. Client-side validation is performed by a web browser, before input is sent to a web server.

# **Chapter 5**

## **CONCLUSION AND FUTURE SCOPE**

### **5.1 CONCLUSION**

The proposed system contains mobile application named as Mobile Based Optical Character Recognition And Text-To-Speech system. This application uses rear camera of mobile device as a default input device. It gathers data in binary image format, those images are processed for the Optical Character Recognition. The Optical Character Recognition recognizes the text from a binary image, and converts it into machine generated text. The proposed system is also able to recognize the printed as well as handwritten text with higher accuracy. The OCR text detection is based on the connected component analysis and feature detection. It gathers outline and converts it into Text lines, those lines are then analyzed for fixed pitch or proportional Text. An attempt is made to recognize each word, and successfully detected data will be sent to an adaptive learner. Further the system goes on training providing more accurate results. The Digital Eye Application work on Offline mode and it requires less memory size on RAM. Initially the

scope is limited to a particular language such as English. It can also be helpful for the person who doesn't know the language / pronunciation of particular words. The system can also be helpful for visually impaired or person with weak visual ability.

## **5.2 FUTURE SCOPE**

Already a lot of research is going on in this field. In future work can be done to improve the efficiency of algorithms and also the accuracy of the mobile application can be improved. In future there is a scope for it can also extend for the long distance capturing, and it can also implement for vertical reading of the image. Considering the part of development, the system can import an image from a gallery and read aloud the text in it. With addition to that PDF scanning and reading functionality can also be provided in future. User should be able to access the scanned document later in time, hence the save functionality can be provided. The system can be more improved to take the app globally such as it is possible to make such system for regional languages and improve localization globalization. Along with it multilingual output can be implemented so that a person can scan document in any language and gets its output in his desired / local language. The recognized data is sent further for converting it into speech using Android text to Speech. The system reduces human efforts along with time.

# **Chapter 6**

## **CODING**

### **6.1 OCR CODE**

```
public class OcrCaptureActivity extends AppCompatActivity
private static final String TAG = "OcrCaptureActivity";

    // Intent request code to handle updating play services if needed.
private static final int RC_HANDLE_GMS = 9001;

    // Permission request codes need to be > 256
private static final int RC_HANDLE_CAMERA_PERM = 2;

    // Constants used to pass extra data in the intent
public static final String AutoFocus = "AutoFocus";
public static final String UseFlash = "UseFlash";
public static final String TextBlockObject = "String";

    private CameraSource mCameraSource;
private CameraSourcePreview mPreview;
private GraphicOverlay<OcrGraphic> mGraphicOverlay;
```

```
// Helper objects for detecting taps and pinches.  
private ScaleGestureDetector scaleGestureDetector;  
private GestureDetector gestureDetector;  
  
/** * Initializes the UI and creates the detector pipeline. */  
@Override  
public void onCreate(Bundle icicle)  
super.onCreate(icicle);  
setContentView(R.layout.ocr_capture);  
  
mPreview = (CameraSourcePreview) findViewById(R.id.preview);  
mGraphicOverlay = (GraphicOverlay) findViewById(R.id.graphicOverlay);  
  
boolean autoFocus = getIntent().getBooleanExtra(AutoFocus, false);  
boolean useFlash = getIntent().getBooleanExtra(UseFlash, false);  
  
int rc = ActivityCompat.checkSelfPermission(this, Manifest.permission.CAMERA);  
if (rc == PackageManager.PERMISSION_GRANTED) createCameraSource(autoFocus, useFlash); else  
  
gestureDetector = new GestureDetector(this, new CaptureGestureListener());  
scaleGestureDetector = new ScaleGestureDetector(this, new ScaleListener());  
  
Snackbar.make(mGraphicOverlay, "Tap to capture. Pinch/Stretch to zoom",  
Snackbar.LENGTH_INDEFINITE).show();  
  
private void requestCameraPermission()  
Log.w(TAG, "Camera permission is not granted. Requesting permission");
```

```
final String[] permissions = new String[]Manifest.permission.CAMERA;  
  
if (!ActivityCompat.shouldShowRequestPermissionRationale(this, Manifest.permission.CAMERA))  
    ActivityCompat.requestPermissions(this, permissions, RC_HANDLE_CAMERA_PERM); return;  
  
final Activity thisActivity = this;  
  
View.OnClickListener listener = new View.OnClickListener()  
{@Override  
public void onClick(View view)  
    ActivityCompat.requestPermissions(thisActivity, permissions, RC_HANDLE_CAMERA_PERM);  
  
};  
  
Snackbar.make(mGraphicOverlay, R.string.permission_camera_rationale, Snackbar.LENGTH_INDEFINITE)  
    .setAction("OK", new View.OnClickListener()  
{@Override  
public boolean onTouchEvent(MotionEvent e)  
    boolean b = scaleGestureDetector.onTouchEvent(e);  
  
    boolean c = gestureDetector.onTouchEvent(e);  
  
    return b || c || super.onTouchEvent(e);  
  
}).show();  
  
@SuppressLint("InlinedApi")  
private void createCameraSource(boolean autoFocus, boolean useFlash)  
    Context context = getApplicationContext();
```

```
TextRecognizer textRecognizer = new TextRecognizer.Builder(context).build();
textRecognizer.setProcessor(new OcrDetectorProcessor(mGraphicOverlay));

if (!textRecognizer.isOperational())
Log.w(TAG, "Detector dependencies are not yet available.");

IntentFilter lowstorageFilter = new IntentFilter(Intent.ACTION_DEVICE_STORAGE_LOW);
boolean hasLowStorage = registerReceiver(null, lowstorageFilter) != null;

if (hasLowStorage)
Toast.makeText(this, R.string.low_storage_error, Toast.LENGTH_LONG).show();
Log.w(TAG, getString(R.string.low_storage_error));

mCameraSource = new CameraSource.Builder(getApplicationContext(), textRecognizer).setFacing(Camera
null).setFocusMode(autoFocus? Camera.Parameters.FOCUS_MODE_CONTINUOUS_PICTURE:
null).build();
```

## 6.2 TTS CODE

```
public class MainActivity extends AppCompatActivity implements OnInputPitch-
Listner, OnInputSpeedListner
private TextView statusMessage;
private TextView textView;
private Button copyButton;
private ImageView mailTextButton;
private ImageView gmail,message;
private Button textTospeechButton;
private Button save;
```

```
private Button history;
boolean isPlaying = false;
private float pitch, speed;
Toolbar toolbar;
private static final int RC_OCR_CAPTURE = 9003;
private static final String TAG = "MainActivity";

private TextToSpeech textToSpeech;
AsyncHttpClient client;

RequestParams params;
JSONObject obj1;

String url = "http://campus.sicsglobal.co.in/Project/ocr/string.php?";

@Override
protected void onCreate(Bundle savedInstanceState)
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
textToSpeech = new TextToSpeech(MainActivity.this, new TextToSpeech.OnInitListener() @Override public void onInit(int status) {
    if (status == TextToSpeech.SUCCESS) {
        Locale locale = new Locale("en", "US");
        textToSpeech.setLanguage(locale);
    }
});

SharedPreferences spOne = getApplicationContext().getSharedPreferences("d1", MODE_PRIVATE);
final String did = spOne.getString("did", null);

textTospeechButton = (Button) findViewById(R.id.text_tospeech_button);
textTospeechButton.setOnClickListener(new View.OnClickListener() @Override public void onClick(View v) {
    Intent intent = new Intent(getApplicationContext(), MainActivity.class);
    intent.putExtra("did", did);
    startActivity(intent);
});

registerForContextMenu(textTospeechButton);
client = new AsyncHttpClient();
```

```
params = new RequestParams();

    save = findViewById(R.id.savebutton);
SharedPreference sp = getApplicationContext().getSharedPreferences("d1", MODE_PRIVATE);
final String sid = sp.getString("did", null);
save.setOnClickListener(new View.OnClickListener() @Override public void onClick(View v)
if (textValue.getText() == "") {
    Toast.makeText(getApplicationContext(), "Empty text field", Toast.LENGTH_SHORT).show();
} else {
    LayoutInflater inflater = LayoutInflater.from(MainActivity.this);
    View cuslay = inflater.inflate(R.layout.dialog, null);
    final EditText title = cuslay.findViewById(R.id.etitle);
    Button bsave = cuslay.findViewById(R.id.bsave);
    AlertDialog.Builder AB = new AlertDialog.Builder(MainActivity.this);
    AB.setView(cuslay);
    final AlertDialog A = AB.create();
    A.show();
    bsave.setOnClickListener(new View.OnClickListener() @Override
public void onClick(View v) {
    A.cancel();
    String stitle = title.getText().toString();
    String encrypted = "";
    String sourceStr = textValue.getText().toString();
    try {
        encrypted = AESUtils.encrypt(sourceStr);
        Log.d("TEST", "encrypted:" + encrypted);
    } catch (Exception e) {
        e.printStackTrace();
    }
    Date currentTime = Calendar.getInstance().getTime();
    // Toast.makeText(MainActivity.this, currentTime.toString(), Toast.LENGTH_SHORT).show();
}
```

```
params.put("string", encrypted);
params.put("title", stitle);
params.put("id", sid);
params.put("date", currentTime.toString());
client.get(url, params, new AsyncHttpHandler()
    @Override
    public void onSuccess(String content)
        super.onSuccess(content);

    try
        Log.e("innn", "in");
        obj1 = new JSONObject(content);

        String s = obj1.getString("status");

        Toast.makeText(MainActivity.this, "" + s, Toast.LENGTH_SHORT).show();
        if(s.equals("Success"))
            Toast.makeText(MainActivity.this, "Saved successfully", Toast.LENGTH_SHORT).show();

        catch (Exception e)

    );
}
```

# **Chapter 7**

## **SCREEN SHOTS**

Figure 7.1: REGISTRATION PAGE

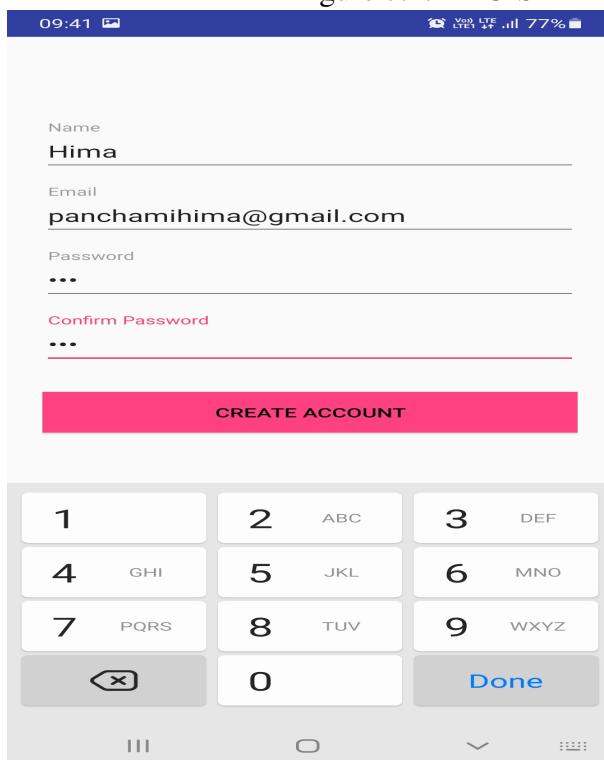
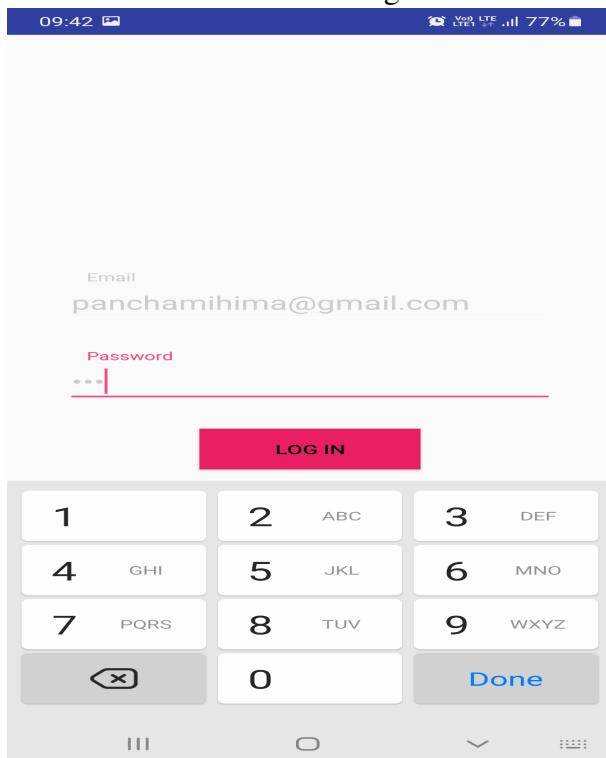
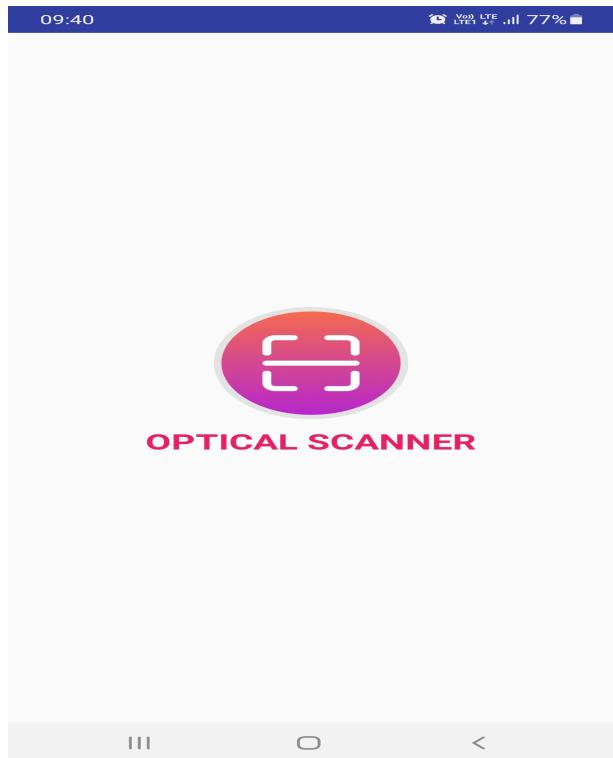
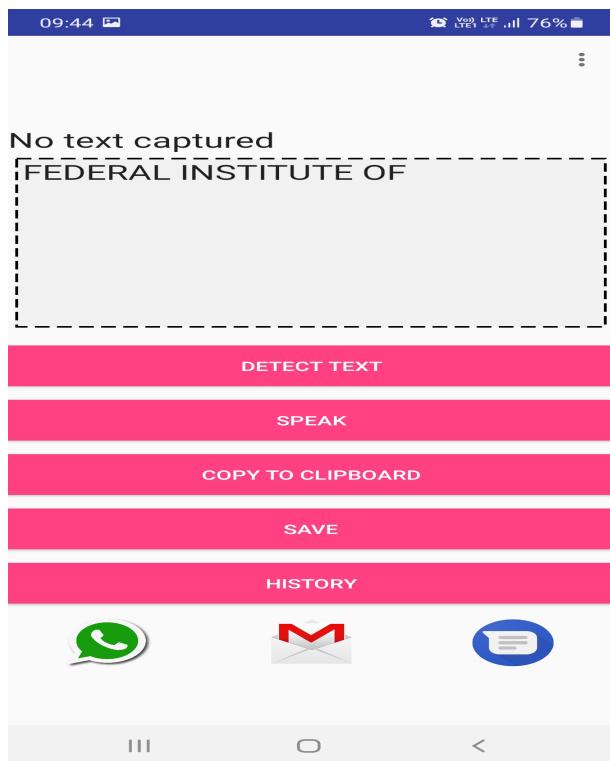
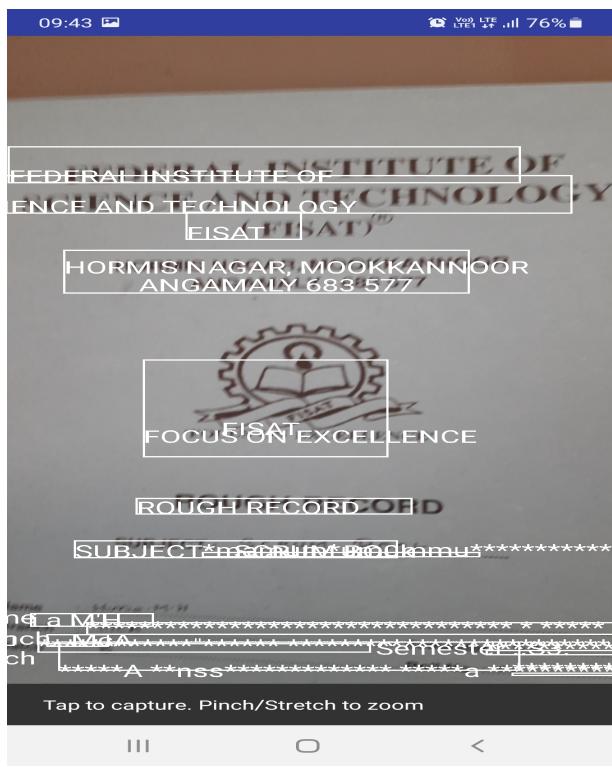


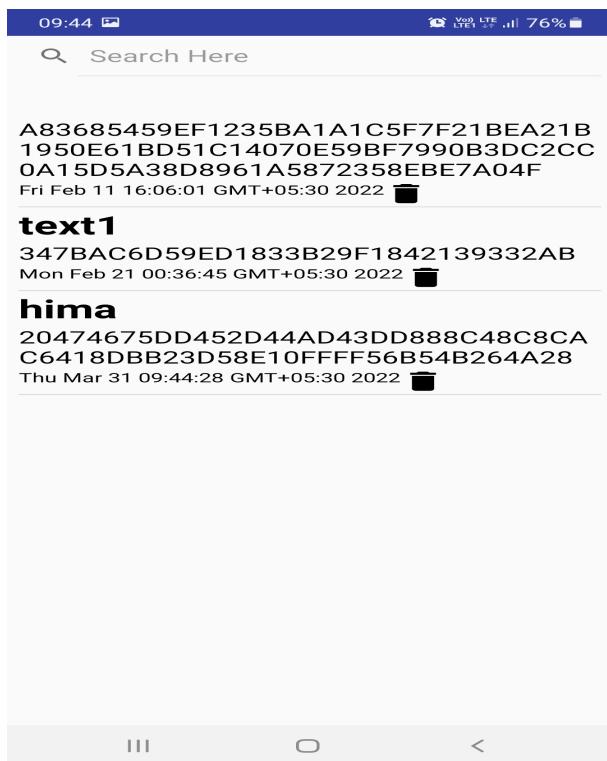
Figure 7.2: LOGIN PAGE











# **Chapter 8**

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