FAKE AADHAR CARD DETECTION USING IMAGE PROCESSING

A

Preliminary Project Report submitted to Savitribai Phule Pune University, Pune

In partial Fulfillment for the awards of Degree of Engineering in

Information Technology

Submitted by

Ms.Hiray Shital B. (18)
Ms.Patil Anushka D. (02)
Ms.Sangle Archna K. (19)
Mr.Khan Imran Abid Ali. (08)

Under the Guidance of

Ms. M. D. Kawade

ESTD - 1928

2018-19

DEPARTMENT OF INFORMATION TECHNOLOGY

SNJB'S LATE SAU. KANATABAI BHAVARLALJI JAIN,
COLLEGE OF ENGINEERING, CHANDWAD
DIST:NASHIK

SNJB'S LATE SAU. KANATABAI BHAVARLALJI JAIN, COLLEGE OF ENGINEERING, CHANDWAD DIST:NASHIK

DEPARTMENT OF INFORMATION TECHNOLOGY
2018-19

CERTIFICATE

ESTD - 1928

This is to certify that,

Ms.Hiray Shital B. (18)
Ms.Patil Anushka D. (02)
Ms.Sangle Archna K. (19)
Mr.Khan Imran Abid Ali. (08)

have successfully completed this project report entitled "*Fake Aadhar Card Detection Using Image Processing* " under my guidance in partial fulfillment of the requirements for the degree of Bachelor of Engineering in Information Technology under the Savitribai Phule Pune University during the academic year *2018-19*

Date:
Place: Chandwad

Ms.M.D.Kawade   Dr.M.R.Sanghavi
Internal Guide   Head of Department

Dr.M.D.Kokate
Principal

Internal Examiner   External Examiner

Acknowledgment

With deep sense of gratitude we would like to thanks all the people who have lit our path with their kind guidance. We are very grateful to these intellectuals who did their best to help during our project work.

It is our proud privilege to express deep sense of gratitude to Dr.M.D.Kokate, Incharge Principal of SNJB's Late Sau K.B.J. COE, Chandwad, for his comments and kind permission to complete this project. We remain indebted to Dr.M.R.Sanghavi, H.O.D. of Information Technology Department for his timely suggestion and valuable guidance.

The special gratitude goes to Ms.M.D.Kawade excellent and precious guidance in completion of this work. We thanks to all the colleagues for their appreciable help for our working project. With various industry owners or lab technicians to help, it has been our endeavor to throughout our work to cover the entire project work.

We are also thankful to our parents who provided their wishful support for our project to complete successfully. And lastly, we thank to our all friends and the people who are directly or indirectly related to our project work.

<div align="right">

Ms.Hiray Shital B.
Ms.Patil Anushka D.
Ms.Sangle Archna K.
Mr.Khan Imran Abid Ali.

</div>

Abstract

The Fake aadhar card detection system is one of the significant projects in India to bring the universal trend of digital innovation. The launch of this project was focused on the inter-operability of various e-governance functionalities to ensure the optimal utilization of information, communication and technology infrastructure. Towards this government of India has recently made aadhar card mandatory for many government applications, and also has promoted aadhar enabled transaction. There are various identification documents for an Indian citizen; likeAadharcard, ID card, Passport, etc. Among them Aadhar is the primary identity verification document. It gives identity to a particular citizen. People are making (fake) Aadhar Card themselves and do illegal works. There are many issues related to security and privacy of the Aadhar data need to be addressed. In this project we are presenting various methods where we can detect the fake Aadhar in a very less time and approximate manner, by using image processing. We have scanned of Unique Identification Authority of India (UIDAI).

Keywords*:Aadhar Card, UIDAI, ID Card, Passport etc.*

Contents

List of Tables

List of Figures

List of Abbreviations

OTP -One Time Password

QR- Quick Response

UID-Unique Identification

UPA -United Progressive Alliance

Chapter 1

Introduction

In this chapter we are going to elaborate introduction of the proposed system. This chapter includes overview, motivation and objective of the system. This chapter also explains that how the report is organize.

1.1 Overview

An Aadhar card is a unique number issued to every citizen in India and is a centralized and universal identification number. The Aadhar card is a biometric document that stores an individuals personal details in a government database, and is fast becoming the governments base for public welfare and citizen services.

Figure 1.1: Aadhar Card

The goal of identify systems to uniquely identify individuals and to do so efficiently-may be well served by emerging digital technologies. Digital identity platforms have the potential to increase coverage, accuracy, efficiency.

The Aadhar project is the worlds largest national identity project, launched by government of India, which seeks to collect biometric and demographic data of residents and store these

in a centralized database. To date, 1036 million users have enrolled in the system, and the government has spent at least 890 million USD on the project (Wikipedia, 2016a)[1]. However, recently there has been a considerable deliberation over the privacy and security issues related to the aadhar project.

Figure 1.2: Changes In Aadhar Card Details

Aadhar is a national identity project, but we believe that the subtle difference between identity verification and authentication is itself not well understood, and this leads to confusions in policy making and deployment. Below, we attempt to first demarcate the two concepts. According to standard notions of digital authentication, security principal (a user or a computer), while requesting provide two independent pieces of information identity and authentication whereas identity provides an answer to the question who are you?, authentication is a challenge-response process that provides a proof of the claim of identity, typically using an authentication credential. Common examples of identity are user ID (Login ID), cryptographic public keys, email ids, ATM or smart cards; Aadhar card is really very important for Indians as the Aadhar card is considered the most important identity card by the government. The UIDAI which stands for Unique Identification Authority of India has also been giving the most importance to the Aadhar card because of many reasons. An aadhar card has many important details of a person like the fingerprints, Iris details, and other important information. Eg: Let me tell an incident which happened in India - A 5-year-old girl was lost on the busy streets of India. A person saw the girl crying and took the girl to the Police Station. The girl was too small to say anything, so they took her fingerprints and hoped that she had an aadhar card. After they checked their systems, they found out the girl's Aadhar Card Status and the small 5-year-old girl was safely sent to her home!

Aadhar card is very important but within three months all aadhar card which are issued they should be cross check and updated by phone no, email id and average electricity bill, average water bill so that in future if some mishappening occurs and a phone gets found everything can be trace able easily and all these things should also be validate on the pc also to protect

the virus, money transfer and many more fear which occurs in the people due to which are not going to digital easily Each time doubts are raised about the authenticity of Aadhar, the Unique Identification Authority of India (UIDAI) comes out with some new gimmick. For example, when there were issues with its 'unique number' claim, UIDAI quickly added fingerprints to it. This was followed by iris scan. The latest in this 'search for uniqueness' is facial recognition of Aadhar number-holders. Unfortunately, like its earlier experiments with fingerprints, and iris scans, the failure of facial recognition through live face photo capture too is most likely to give way to something new, perhaps DNA profiling. This also means that UIDAI will continue to splurge taxpayers money on its experiments in search of really unique identification (UID).

An Aadhar card is a unique number issued to every citizen in India and is a centralized and universal identification number. The Aadhar card is a biometric document that stores an individual's personal details in a government database, and is fast becoming the government's base for public welfare and citizen services.

The goal of identity systems-to uniquely identify individuals and to do so efficiently-may be well served by emerging digital technologies. Digital identity platforms have the potential to increase coverage,accuracy,efficiency. The Aadhar project is the worlds largest national identity project, launched by government of India, which seeks to collect biometric and demographic data of residents and store these in a centralized database. To date, 1036 million users have enrolled in the system, and the government has spent at least 890 million USD on the project (Wikipedia, 2016a). However, recently there hasbeen a considerable deliberation over the privacy and security issues related to the Aadharproject.

Aadhar is a national identity project, but we believe that the subtle difference between identity verification and authentication is itself not well understood, and this leads to confusions in policy making and deployment. Below, we attempt to first demarcate the two concepts. According to standard notions of digital authentication, a security principal (a user or a computer), while requesting access to a service, must provide two independent pieces of information - identity and authentication. Whereas identity provides an answer to the question who are you? authentication is a challenge-response process that provides a proof of the claim of identity, typically using an authentication credential. Common examples of identity are User ID (Login ID), cryptographic public keys, email ids, ATM or smart cards;

1.2 Motivation

Government of India has been linking each and every welfare services and benefits to Aadhar card. But linking is not sufficient, Data is an asset of an organization, and Privacy is some sort of assurance that an individual requires from an organization. Therefore Data privacy

Figure 1.3: Aadhar Card Details

together refers to the ability of an organization that determines which data has to be shared with third party. As the Aadhar card contains both the demographic and biometric data, so it becomes a risk for an individual as well as to the government if the data are insecure. The data needs to be addressed hence this project helps to recognition of every Aadhar card holder is Authenticated user with unique identity number. Detection of fake Aadhar data need to be addressed, hence this Project helps to identify fake Persons whom uses the fake IDs for illegal works.

Aadhar project was introduced under the scheme UIDAI (Unique Identification Authority of India) by the UPA (United Progressive Alliance) government in year 2009. Aadhar card contains the demographic features such as name of the citizen, Father/Mothers name, Date of Birth, Sex, address of the citizen, and biometric features such as photograph, fingerprints and iris (eye) details. The demographic features as well as in the form of Quick Response (QR) code along with a 12-digit unique identity number called, Aadhar, are printed on the card issued to every citizen. All the demographic and biometric data are stored into one centralized database and this project has been reported as a worlds largest database management and Biometric ID system.

The UIDAI project provides the online support to change the demographic data of Aadhar Card using SSUP (Self Service Update Portal) from UIDAI official website (uidai.gov.in). For an instance to change the name, one needs to submit the Gazette Notification of India mentioning that required persons name has been changed from old name to new name. To update DOB (Date of Birth), the required documents are Birth Certificate issued by the District Municipal Corporation, and for the people who dont have a birth certificate and were born before 1989, they can provide an affidavit to change their DOB. Further, if one dont have the required document to change the DOB, then SSLC (Secondary School Leaving Certificate) or Passport can also be taken into consideration. For changes in address, electricity bill, landline bill, credit card bill less than three months old, bank passbook, Voter

ID, Passport or a rental agreement, and the scanned copy of proof of identity is sufficient. Changes can also be made to the Gender and Mobile number as well, and proof of identity is required for these purposes. For all the demographic changes the authentication is being checked through an OTP (One Time Password) sent to the registered mobile number. However, the biometric data cant be changed.

Nowadays the government of India is linking the Aadhar card with many government functionalities, but there are many security and privacy issues of the Aadhar database need to be addressed. The scope and advantages of linking Aadhar card to various systems present case studies in which the implementation of Aadhar card may lead to security threats. The government of India has been linking the Aadhar card with various government schemes such as for cooking gas subsidies, house allotments, school scholarships, admission into remand and welfare houses, passports, e-lockers (eg. Digilocker), for archiving documents, bank accounts under PMJDY (Prandhan Mantri Jan Dhan Yojana), provident funds account, pensions, driving license, insurance policies, loan waivers and many more. Recently it has also been made mandatory for ATM Cash Transaction, railway reservation and applying PAN (Permanent Account Number) card and filing income tax returns.First we discuss railway reservation system.

1.3 Railway Reservation System Using Aadhar Card

Figure 1.4: Railway Reservation System Using Aadhar Card

To enhance the security linking of Aadhar card may be very useful. For an instance in their work 10 proposed Aadhar Card based reservation system in which the Aadhar card will be mandatory to book the tickets, and further the passenger will go through two stages to enter into the platform. The first stage is the Security Check in which passenger will be authenticated by his Aadhar Card, and the biometric data of the person will be matched with the Aadhar Database in the second stage. After successfully going through both stages

the passenger will get an update at his/her mobile number with his ticket that whether he can enter the specified platform. 11 also proposed a model which overcomes the drawback of online ticket Reservation. In their proposal if one person wants to purchase multiple tickets, then he first has to authenticate himself with his Aadhar card and an OTP (One Time Password) sent to his/her registered mobile number, and further Aadhar card number of all the passengers will be required. Once the ticket is successfully booked, all the passenger would be notified so any false/fake ticket booking can be observed easily. Therefore the linking of Aadhar card can help a lot to improve the existing railway reservation.

1.4 Aadhar card for ATM Security

Figure 1.5: Aadhar card for ATM Security

To enhance the security of the ATMs proposed the model of Biometric ATM enabled with the fingerprint approach to identification. Authors suggested the use of Fingerprint for authentication purpose apart from PIN verification. However various physical factors such as need of high definitions camera in ATM, extreme weather conditions some are barrier to implement Biometric enabled ATM. Recently 16 suggested ATM transaction using Aadhar card systems and OTP. In this system the Aadhar Card details will be mandatory to access the account with OTP. The main idea for Aadhar card enabled ATM is that it consists of various biometric details. First ATM in India which uses Aadhar number and Aadhar Biometrics to withdraw cash and other transaction 17. This service has major benefits like no need to carry ATM, blocking ATM card in case of lost, and moreover biometrics are more secure than the ATM pin. Therefore in future Aadhar card can be seen as a medium for Banking.

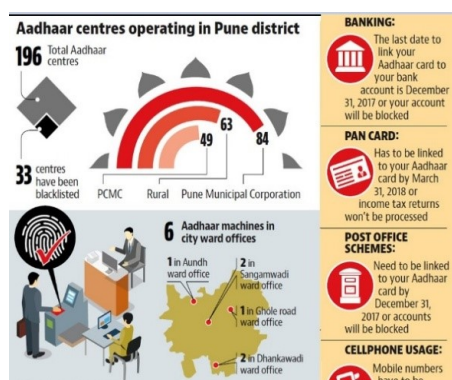## 1.5   Aadhar card for Municipal Corporations

Figure 1.6: Aadhar card for Municipal Corporations

In India Municipal Corporations are local government bodies that work towards the development of cities having more than 10 lakh citizens. They are responsible for managing community services like public healthcare, sewage, electricity, road etc. Though, the delivering of the services by the municipal corporation is bad. Complaints registered in Municipal Corporation sometimes have zero response and public health is put in danger as lack of functionality. 25 proposed a model for effective solution towards complaints registered in Municipal Corporation using Aadhar card. In the proposed model, Aadhar card is used for the authentication purpose as before the registering a complaint, one must register himself on the municipal corporation using Aadhar number. Once entered, they will get a message from the website which will have login credentials. Once user logs in, then he/she have to select a department in which he/she want to register a complaint. After that, problems from the given list can be selected or if problem is not in the list, then the message can be dropped. After successful complaint registration, complaint is saved in the municipal database with date, time and user details with the help of Aadhar card. On the other hand, in Municipal Corporation, each department has an in charge that is being provided with a login credentials provided by the municipal corporation. When the in charge logins, he is able to see the complaints registered under his department and then the work is allotted according to priorities. Also, they are responsible to check that work is done by the people under them. To avoid the misuse of the system, a black mark is given to each bogus request generated by the user. Limit of black mark is 3 and if it exceeds, then the user is not viable to make a request again. Priority is given on the basis of date, time and number of people who registered the same type of complaint. Users can also check the status of their complaint. In fact there are four stages of the status, when you register a complaint; the status is pending which is first and foremost. After pending, it will move to the status progress which states that the work on complaint has started. If the status is either in progress or

in pending after exceeding the default time allocated, then the status shifts to Forwarded to Higher Officials where higher official takes care of it. If the problem still is unresolved after 24 hours, then the status changes to Forwarded to Press which cannot be reverted back to completed status. Once the work is complete, then the status changes to Completed. When multiple people register complaint for same problem, then employees must ensure that at least one amongst them status changes to completed. The idea to propose this model was to establish a direct communication link between municipal body and the citizen. It may help in bringing transparency in the system and efficiency towards the municipality.

1.6   Objective

1.Check whether the Aadhar card is detected or not.

2.To avoid Aadhar card detection failure.

3.To achieve Image through Aadhar card detection process.

4.Provide user easy to access and less complicated way to detect Fake Aadhar card.

1.7   Organization of Report

Introduction (Chapter 1)

General overview about the Fake Aadhar Card Detection Using Image processing and, its problem Definition, its motivation, overview, and objective are given here.

Literature Survey (Chapter 2)

This chapter provides a detailed literature survey of proposed system. Based on Many existing system have been studied which provide let user post on wall upload graphical contents and share them.

Requirement and Analysis (Chapter 3)

Its contain the requirement of software for implementation of proposed system. Basic need of system give detail about that software, which protocol issued for completion the operation of proposed system.

Design and Analysis (Chapter 4)

This chapter contains design of proposed system. And also it Contain the system architecture that describe how to system is work. A general overview of system working and also contain UML diagram that more elaborate the system.

Project Plan (Chapter 5)

This chapter create the system implementation plan for time to time work.

Conclusion (Chapter 6)

This chapter concludes the working of system.

Chapter 2
Literature Survey

This chapter provides a detailed literature survey of proposed system. Based on Many existing system have been studied which provide let fake detection system and share them. The design of a proposed system providing customizable content-based fake Detection Systems for Currency Detection Using Image Processing, passport Detection Using Image Processing our work has relationships both with the fake detection system using image processing. Following are we survey the literature of Fake Detection System:

- Fake Currency Detection Using Image Processing

- Fake Passport Detection Using Image Processing

- Fake Aadhar card Detection Using Image Processing.

2.1 Fake Currency Detection Using Image Processing

The main objective of this project is fake currency detection using the image processing. Fake currency detection is a process of finding the forgery currency. After chooses the image apply preprocessing. In pre-processing the image to be crop, smooth and adjust. Convert the image into gray color. After conversion apply the image segmentation. The features are extracting and reduce. Finally compare the image into original or forgery.

Fraud detection technique by using performance metrics is used in this paper. This method is used to detect credit card fraud, computer intrusion and tele-communication fraud. Neural networks and model based reasoning are the two methods behind this technique. The general attributes like identification mark and serial numbers of currency are extracted. Denomination of currency is known by identification mark. Next generation intrusion detection expert system is used in this paper by using the real time and batch technique. Large volume of fake money will cause many problems. Using machines it is easy to recognize fake currency. Every year RBI (Reserve Bank of India) face the fake money or destroyed money. Various

methods like water marking, optically variable ink, florescence, etc. are used to detect fake currency in this paper. In this system, various two components of two images are combined together to find the variation among the images. Image acquisition, gray scale conversion, edge detection, feature extraction, image segmentation and comparison of images are the methods used in this approach to detect the fake currency.

Figure 2.1: Different types of currency

Feature extraction by edge based segmentation using sable operator is used in this paper for design and implementation. The image is acquired and the acquired image is converted into grey scale by pixel value .The image is sub divided into object or region by image segmentation. Security features of Indian currency are used in this paper.

2.1.1   Techniques

Image Acquisition:
The first stage of any vision system is the image acquisition stage. After the image has been obtained, various methods of processing can be applied to the image to perform the many different vision tasks. Performing image acquisition in image processing is always the first step in the workflow sequence because, without an image, no processing is possible. There are various ways to acquire image such as with the help of camera or scanner. Acquired image should retain all the features.

Pre-processing:
The main goal of the pre-processing to enhance the visual appearance of images And improve the manipulation of data sets.Pre-processing of image are those operations that are normally required prior to the main data analysis and extraction of information. Image pre-processing, also called image restoration, involves the correction of distortion, degradation, and noise introduced during the imaging process. Image pre-processing can significantly

increase the reliability of an optical inspection. Several filter operations which intensify or reduce certain image details enable an easier or faster evaluation. Image Adjusting is done with the help of image interpolation. Interpolation is the technique mostly used for tasks such as zooming, rotating, shrinking, and for geometric corrections. Removing the noise is an important step when image processing is being performed. However noise may affect segmentation and pattern matching. When performing smoothing process on a pixel, the neighbor of the pixel is used to do some transforming. After that a new value of the pixel is created of a two-dimensional image. The Sobel operator performs a 2-D spatial gradient measurement on an image. Typically it is used to find the approximate absolute gradient magnitude at each point in an input gray scale image. The Sobel edge detector uses a pair of 3x3 convolution masks, one estimating the gradient in the x-direction (columns) and the other estimating the gradient in the y-direction (rows). A convolution mask is usually much smaller than the actual image. As a result, the mask is slid over the image, manipulating a square of pixels at a time.

Gray Scale Conversion:

The image acquired is in RGB color. It is converted into gray scale because it carries only the intensity information which is easy to process instead of processing three components R (Red), G(Green), B(Blue).to take the RGB values for each pixel and make as output a single value reflecting the brightness of that pixel.

Figure 2.2: Gray Scale conversation

One such approach is to take the average of the contribution from each channel: (R+B+C)/3. However, since the perceived brightness is often dominated by the green component, a different, more "human oriented", method is to take a weighted average, e.g.: 0.3R + 0.59G + 0.11B.

Edge Detection:

Edge detection is the name for a set of mathematical methods which aim at identifying points in a digital image at which the image brightness changes sharply or, more formally, has discontinuities. The points at which image brightness changes sharply are typically organized into a set of curved line segments termed edges.
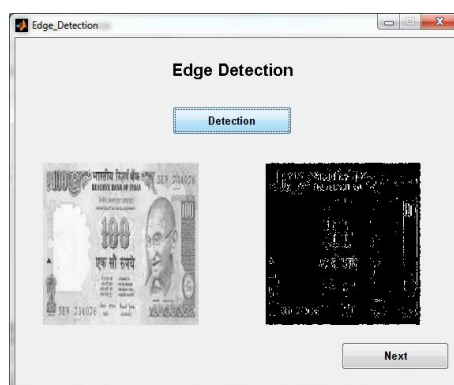

Figure 2.3: Edge Detection

The same problem of finding discontinuities in 1D signal is known as step detection and the problem of finding signal discontinuities over time is known as change detection. Edge detection is a fundamental tool in image processing, machine vision and computer vision, particularly in the areas of feature detection and feature extraction. Edge detection is an image processing technique for finding the boundaries of objects within images. It works by detecting discontinuities in brightness. Edge detection is used for image segmentation and data extraction in are as such as image processing, computer vision, and machine vision. Based on this one dimensional analysis, the theory can be carried over to two dimensions as long as there is an accurate approximation to calculate the derivative analyze. Image segmentation is typically used to locate objects and boundaries (lines, curves, etc.) in images.

Image Segmentation:

Image segmentation is the process of partitioning a digital image into multiple segments (sets of pixels, also known as super pixels). The goal of segmentation is to simplify and/or change the representation of an image into something that is more meaningful.

Feature Extraction:

Feature extraction is a special form of dimensional reduction. When the input data to an algorithm is too large to be processed and it is suspected to be very redundant then the input data will be transformed into a reduced representation set of features.

Transforming the input data into the set of features is called feature extraction. If the
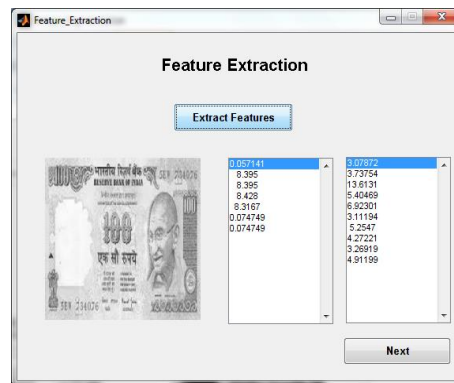
Figure 2.4: Feature Extraction

features extracted are carefully chosen it is expected that the features set will extract the relevant information from the input data in order to perform the desired task using this reduced representation instead of the full size input.

2.2 Fake Passport Detection Using Image Processing

There are various identification documents for an Indian citizen. Like aadhar card, ID card, passport, etc. In this system presented various methods where we can detect then fake passport in a very less time and approximate manner, by using image processing. This scanned the important security features of Indian passport, cropped them and applied various image processing processes.

Figure 2.5: Passport detection system using Check the passport QR code

Passport is one of the authentications for a citizen. It gives him/her recognition that he/she belongs to a particular country. Indian passport is issued by the Government of India to its citizens for traveling abroad. It serves as proof of The consular Passport Visa (CPV) Division of the Ministry of External Affairs functioning as the central passport origination,

is responsible for issuing Indian passports on demand to all eligible Indian citizens.

Figure 2.6: Indian Passport covers

Indian passports have a dark blue or deep bluish black cover with golden colored printing. The Emblem of India is emblazoned in the center of the front cover. The words passport, written in Hindi and English are inscribed above the emblem and Republic of India, in English and Hindi are inscribed below the emblem. With more recent Indian passports the personal particulars of the passport holder, that were hitherto printed on the inner cover page, are printed on the second page of the document. Another added security feature in the newer non-handwritten passports is a ghost picture of the holder found on the right side of the second page.

2.2.1 Techniques

As we earlier mentioned that we will be using image processing in that we will extract region of region, after that Neural Network and Pattern Recognition Technique is used for matching the pattern.

A. Brief view of algorithm Obtain the image of the passport using one of the possible methods (e.g.: Camera, Scanner, etc.) By using pre-processing change the nature of the image and extract the required information. Using cropping detects the boundaries and extracts the ROI (Region of Interest). Convert image to gray scale and apply sobel edge filter, average filter, laplacian filter. After that, its compared with original image by using Neural Networks and Pattern Recognition Tool in Mat lab.

B. Description of the Algorithm: The aim is to have such algorithm which will havegood efficiency and less number of steps.

Step 1: Image Actuation: The image is obtained by holding the passport and its cover page in front of the UV light such that each security feature is obtained in the image. Environmental conditions might affect the actuation, so care must be taken while capturing the image.

Figure 2.7: Indian Passport cover Page

Step 2: Pre-processing Operations: The objective of Pre-processing operations is to alter the nature of the image, which makes extraction of features easier. Here we will be using, blurring, gray scale conversion, thresholding, noise removal using filters. These operations help us in detecting boundaries, cropping the ROI.

Figure 2.8: Indian Passport cover Page2

Step 3: Boundary Detection and cropping: For boundary detection, we require a binary image, which comprises of 2 colors, black and white. All we do in this process is simply, separate the background and the foreground, and separate the ROI.

Step 4: Feature extraction: The next step is to extract required information from the cropped ROI image. So from the binary image we find out the dimensions of the symbol son passport and find out the aspect ratio. Then we compare the aspect ratio of the image with the original aspect ratio of the original passport. I use also signature verification, that will compare the Signatures of the both the passports.

Figure 2.9: Pages Of Indian Passport

Step 5: Comparing the result: After obtaining value, its compared with value of original image by using Neural Networks and Pattern Recognition Tool in Mat lab.

2.3 Fake Aadhar Card Detection Using Image Processing

This system is not implemented but we are facing in our day to day life many problems related to aadhar card.

Figure 2.10: Check Aadhar card is fake or real

The government of India has been linking the Aadhar card with various government schemes such as for cooking gas subsidies., house allotments, school scholarships, admission into remand and welfare houses, passports, e-lockers(eg.Digilocker). For archiving documents, bank accounts under PMJDY (PradhanMantry Jan DhanYojana).provident funds account, pensions, driving license, insurance policies, loan waivers and many more.

Main Purpose of the system is to Detecting Fake Aadhar Card Facility by processing the Captured Image. By Using Image Processing Technique the Aadhar card is to be detected as real or fake!!The existing system is proposed from Detection of fake Passport and Fake Currency using Image Processing technique.

Figure 2.11: Duplicate Aadhar Card

Chapter 3

Requirement And Analysis

In this chapter we are going to have an overview of problem definition; system requirements like software requirements, hardware requirements; and system features like image processing of character recognition algorithm.

3.1 Problem Definition

To develop such a government rules which can scan the user aadhar card which have Aadhar card contents in it. Also allowing to using character recognition algorithm which are check the user aadhar card is fake or real because of government of rules are any document is linking the aadhar card but many people is misuse of aadhar card like as banking sector, passport etc.so we are design the proposed system is fake aadhar card detection system using image processing. This proposed system is scanning the aadhar card then scan the letters using Character recognition algorithm and also scan the image using QR code and which helps in government releaser programmer want to design and apply it on user Aadharcard.Then our proposed system is detect the user aadhar card is fake or real. The real aadhar card is valid user and also check the fake aadhar card is detected then our system is detecting the fake aadhar card.

3.2 Requirement Specification

3.2.1 System Feature

The system features are as follows
1.Verify UID Number:
Aadhar is a 12-digit unique identification number issued by the Indian government to every

individual resident of India. The Unique Identification Authority of India (UDAI), which functions under the Planning Commission of India, is responsible for managing Aadhar numbers and Aadhar identification cards.

2.Verify Citizen Name:

Aadhar card consist of Citizen Name which is unique for every person. The name is in the format of first name, middle name and last name.

3.Verify Citizen Age:

If the age of applicant is less than 5 years, no biometrics will be recorded, only photograph will serve the purpose.3.In this case, childs Aadhar will be linked to the UID of his parents. These children will need to update their biometrics of ten fingers, iris and facial photograph, when they turn 5 and 15.

It is done only to retrieve only Name, Age and DOB part of an Image.

4.Verify Aadhar card Image:

IF the Aadhar card image verified by gray scale algorithm and comparing image in Raspberry pi3 and database is check the image is real or fake. The image is capture to using web camera and matching the image using Raspberry pi3 for image processing.

3.3 Software and Hardware Requirements

3.3.1 Hardware Requirement

1.Raspberry Pi

Instead used an SD card for booting and long term storage.This board is intended to run Linux Debian based operating systems. This Raspberry Pi module has as Samsung class 4 micro SD card preloaded with the Raspberry Pi NOOBS (New out of Box Software) package, and a printed Micro SD card adaptor.
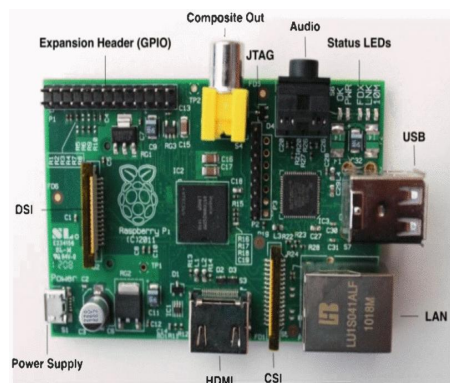

Figure 3.1: Raspberry Pi board (Model B).

2.Web Camera

The camera module used in this paper is raspberry pi camera module as shown in the Fig. 3. The camera module plugs to the CSI connector on the Raspberry Pi. It's able to deliver clear 5MP resolution image, or 1080p HD video recording at 30fps. The camera module attaches to Raspberry Pi by a 15 pin Ribbon Cable, to the dedicated 15 pin MIPI Camera Serial Interface (CSI), which was designed especially for interfacing to cameras. The CSI bus is capable of extremely high data rates, and it exclusively carries pixel data to the BCM2835 processor. Used on to the board. After installing the OS to the board connect all the necessary hardware components and switch on the power supply.

Figure 3.2: Raspberry Pi camera board

3.Monitor The monitor use for the connectivity for the all data and information of fake aadhar card and GUI for the proposed system.

3.3.2 Software Requirement

1.Operating System

Operating system runs various platforms independent softwares in which we are using python and ubuntu for implementing GUI and Image processing techniques.

2.OpenCV-Python

OpenCV-Python makes use of Numpy, which is a highly optimized library for numerical operations with a MATLAB-style syntax. All the OpenCV array structures are converted to and from Numpy arrays. This also makes it easier to integrate with other libraries that use Numpy such as SciPy and Matplotlib. Currently OpenCV supports a wide variety of programming languages like C++, Python, and Java etc and is available on different platforms including Windows, Linux, OS X, Android, iOS etc. Also, interfaces based on CUDA and OpenCL are also under active development for high-speed GPU operations.

OpenCV-Python is the Python API of OpenCV. It combines the best qualities of OpenCV C++ API and Python language.Python is a general purpose programming language started by Guido van Rossum, which became very popular in short time mainly because of its simplicity and code readability. It enables the programmer to express his ideas in fewer lines of code without reducing any readability.Compared to other languages like C/C++, Python is slower. But another important feature of Python is that it can be easily extended with C/C++. This feature helps us to write computationally intensive codes in C/C++ and create a Python wrapper for it so that we can use these wrappers as Python modules. This gives us two advantages: first, our code is as fast as original C/C++ code (since it is the actual C++ code working in background) and second, it is very easy to code in Python. This is how OpenCV-Python works; it is a Python wrapper around original C++ implementation. And the support of Numpy makes the task easier. Numpy is a highly optimized library for numerical operations. It gives a MATLAB-style syntax. All the OpenCV array structures are converted to-and-from Numpy arrays. So whatever operations you can do in Numpy, you can combine it with OpenCV, which increases number of weapons in your arsenal. Besides that, several other libraries like SciPy, Matplotlib which supports Numpy can be used with this. So OpenCV-Python is an appropriate tool for fast prototyping of computer vision problems.

3.Xamp

Xamp is an open server local host used for accessing database connectivity with (GUI) graphics user Interfaces.

4.RAM

512MB (Model B rev.2)

256 MB (Model A, Model B rev.1)

Chapter 4

System Analysis

Fake Aadhar card detection system are today one of the most popular interactive medium to communicate, share and disseminate a considerable amount of human life information. Daily and continuous communications imply the exchange of several types of content, including free text, image and personal data. Our system is analysis of actual aadhar card implementation and detection of the system.
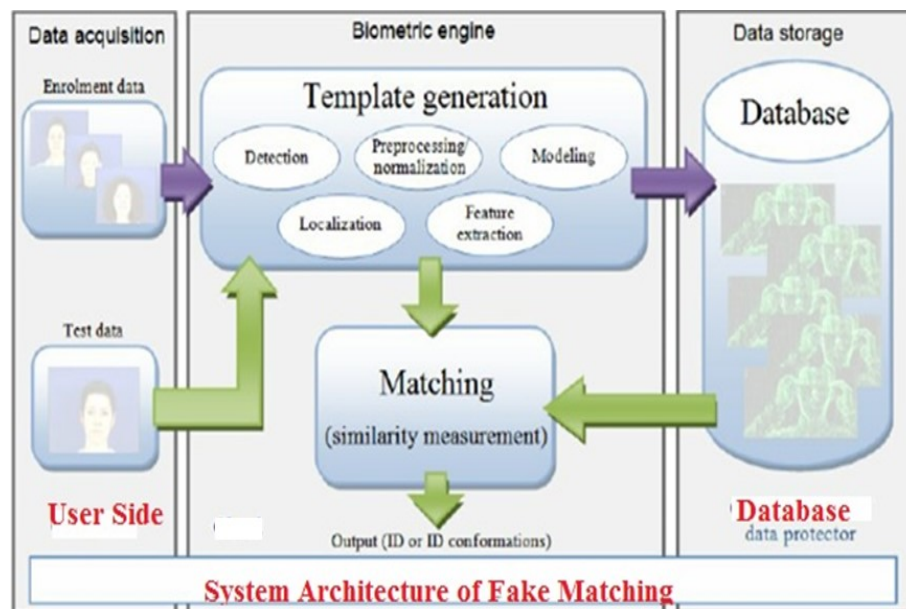
4.1 System Architecture

Figure 4.1: System Architecture

Image Actuation: The image is obtained by holding the passport and its cover page in front of the UV light such that each security feature is obtained in the image. Environmental conditions might affect the actuation, so care must be taken while capturing the image.

Pre-processing: The objective of Pre-processing operations is to alter the nature of the image, which makes extraction of features easier. Here we will be using, blurring, gray scale conversion, thresholding, noise removal using filters. These operations help us in detecting boundaries, cropping the ROI. Feature Extraction: Feature extraction is a special form of dimensional reduction. When the input data to an algorithm is too large to be processed and it is suspected to be very redundant then the input data will be transformed into a reduced representation set of features. Comparing the result: After obtaining value, its compared with value of original image by using Raspberry Pi3 and Rcasecade algorithm for match the original or fake Aadhar Card and display result. Database: The above diagram shows the all functions and working of system. The database is stored the all user aadhar card details and check the user is validate or not.

4.1.1 UML Diagrams

1.Class Diagram

Mainly there are four classes Admin, GUI, database and Result. All classes are related with each other by association relationship. The admin login to the system. GUI collect the admin info And send the all information store to the database. It also represents the result and verifies the data aadhar card is fake or real.

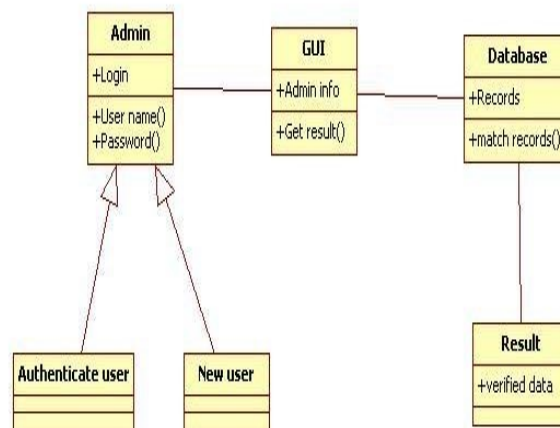All classes are related with each other by association and multiplicity.

Figure 4.2: Class Diagram of Fake aadhar Card Detection System

2.Object Diagram

In this object diagram the objects of user and Authentication are present. That means user

can shows the all attributes like as user ID, name, mobile no, password and authentication shows the attributes Rcasecade algorithm and user Id etc. The object diagram is also includes the multiplicity of this diagram.
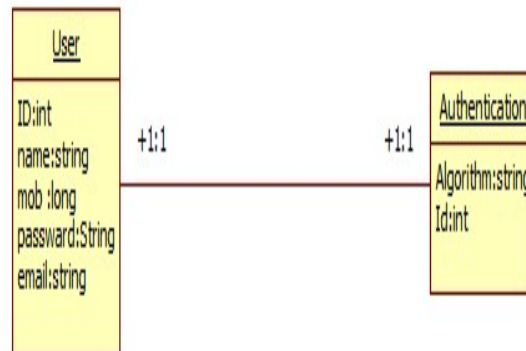

Figure 4.3: Object Diagram of Fake Aadhar Card Detection System

3.Package Diagram

There are multiple Packages admin Login, Authentication, scan the Aadhar card ,Apply Rcasecade algorithm, verify database and display result.Admin login and provide authentication for another user and scan aadhar card using Rcasecade algorithm to check the image details and verified database and result display.
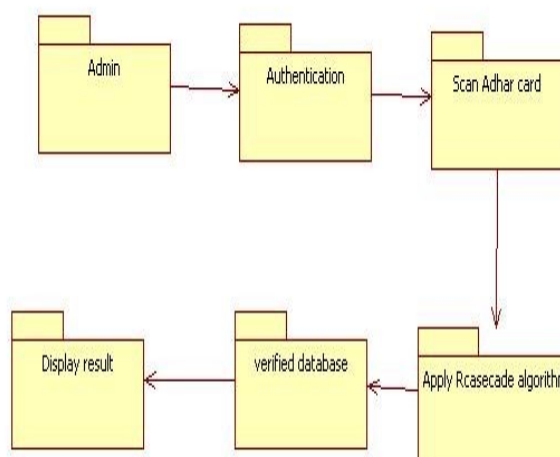
Figure 4.4: Package Diagram of Fake aadhar Card Detection System

4.State Diagram

There are many states in Fake aadhar card detection system. The various states are Admin

login, Aadhar card scanning and image processing, Character recognize and display the result on the System As the activities are going the state of the system is getting changed. The user will detect fake aadhar card.
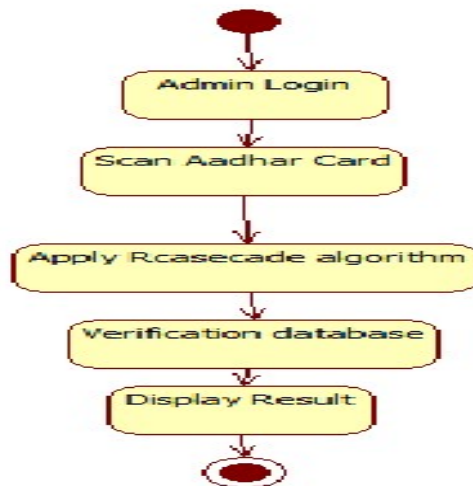

Figure 4.5: State Diagram of Fake Aadhar Card Detection System

5.UseCase Diagram

In this system admin will have to login and registering to use the system. The scan the aadhar card, and use the R Cascade algorithm and check database verification of aadhar card and display the result for use case diagram.
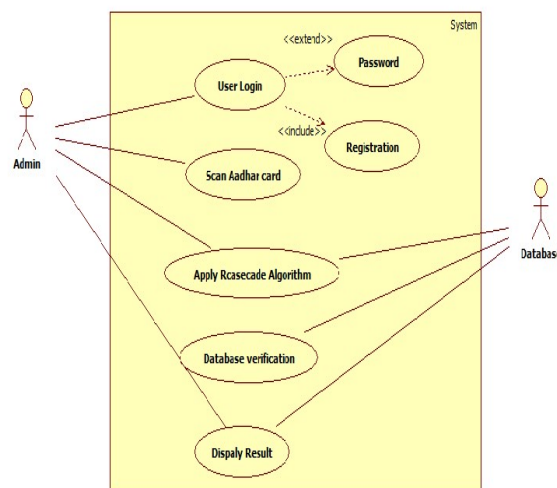
Figure 4.6: Use Case diagram of Fake Aadhar Card Detection System

6.Activity Diagram

There are various activities namely activate login user , scanning Aadhar card, Detect aadhar card is fake or real, display result,This activity diagram shows how theactivity is performed

and changed as per the condition. The activity performed by the userand activity performed by prototype are clearly shown in this diagram. This diagram helpssin easy decision in implementation phase.
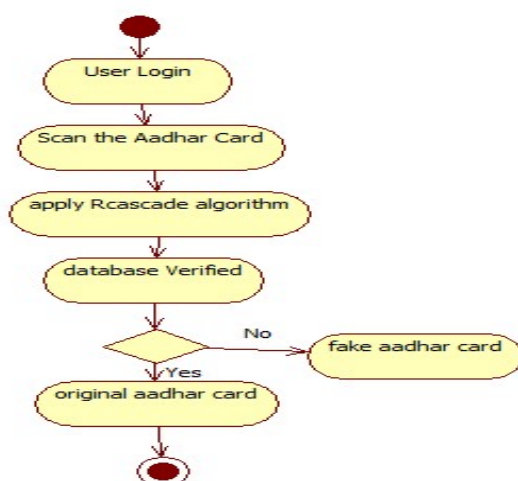

Figure 4.7: Activity Diagram of Fake Aadhar Card Detection System

7.Sequence Diagram

This system consists of three name objects namely user, server, and database. User request to server for the Login, then server check the validation then apply the algorithms to Rcasecade. Then database check the all validation process and algorithms then database display result to user for sequence diagram.
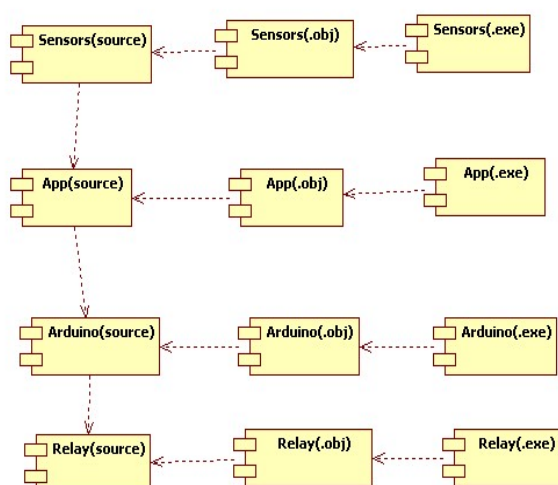

Figure 4.8: Sequence Diagram of Fake Aadhar Card Detection System

8.Component Diagram

In Component Diagram there are three components namely camera, User Interface and Database. The Admin login to the system and scan the aadhar card. The Rcasecade algorithm on raspberry pi3 using Image Processing and stored all the records in database.
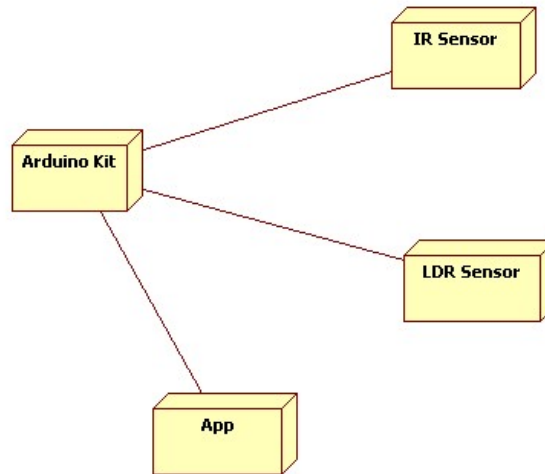
Figure 4.9: Component Diagram of Fake Aadhar Card Detection System

9.Deployment Diagram

In Deployment diagram there are four nodes namely Admin, authentication user, new user And Database. The Admin can authenticate user and new user. Then authenticated users may store the new records in on Database and also check the aadhar card is fake or real.
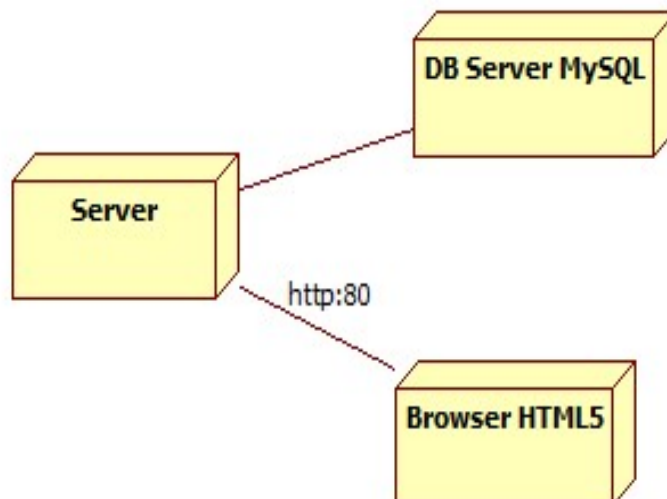
Figure 4.10: Deployment Diagram of Fake Aadhar Card Detection System

Chapter 5

Project Plan

In this chapter we are going to have an overview about how much time does it took to complete each task like- Preliminary Survey Introduction and Problem Statement, Literature Survey, Project Statement, Software Requirement and Specification, System Design, Partial Report Submission, Architecture Design, Implementation, Deployment, Testing, Paper Publish, Report Submission and etc. This chapter also gives focus on stakeholder list which gives information about project type, customer of the proposed system, user and project member who developed the system.

5.1 Stakeholder List

The Stakeholder list shows the persons who are interacting with the prototype in various roles.

Table 5.1: Stakeholder List

Sr.No	Stakeholder	Irrigation.
1	Project Type	Innovative Work
2	Customer	Government
3	User	Public user ,Government
4	Project	Team Member 1.Hiray Shital B. 2.Patil Anushka D. 3.Sangle Archna K. 4.Khan Imran Abid Ali.

5.2 System Implantation Plan

The System Implementation plan table shows the overall schedule of tasks completion and time duration required for each task.

Table 5.2: System Implantation Plan

Task No.	Task Name	Start Date	End Date
1	Preliminary Survey	26-05-2018	02-07-2018
2	Introduction and Problem Statement	04-07-2018	10-07-2018
3	Literature Survey	13-07-2018	23-07-2018
4	Project Statement	10-08-2018	21-08-2018
5	Software Requirement and Specification	22-08-2018	25-08-2018
6	System Design	10-09-2018	28-09-2018
7	Partial Report Submission	30-09-2018	05-12-2018

Chapter 6

Conclusion

The main objective of this Fake Aadhar card detection system is to make it more innovative, user friendly, time saving and more efficient than the existing system. Measuring four parameters such as web camera, R Cascade algorithm and Rasberi-Pi3 Image Processing and the system also includes detecting system. The method we have used for detection of fake Aadhar card is simpler and efficient. We have used the module of Rasberi-Pi3 image processing, enhance the security and data conflict is avoided. We implemented the algorithm to enhance an image in different enhancement degree using the raspberry pi3. It was found that the algorithm developed for the raspberry pi3 executes successfully and gives a very colorful image.

References

- Wikipedia. Indian aadhar card.Available from https://en.wikipedia.org/wiki/indian Aadhar.

- Wikipedia.Indianaadharcover.Availablefrom https://wn.wikipedia.org/wiki/indianaadhar media/file:indianAadharcover2015.jpg

- https://resident.uidai.gov.in/check-aadhar-status

- https://www.quora.com

- https://yourstory.com/mystory/920a15ea70-why-having-an-aadhar-card-is-really-important-for indians?

- https://www.moneylife.in/article/aadhaar-unique-number-fingerprints-iris-scan-and-now-facial- recognition-uidai-experiments-continue/55121.html

- https://en.wikipedia.org/wiki/Indian$_p$assport
  $https://en.wikipedia.org/wiki/Indian_passport/media/File : Indian_Passport_cover_2015.jpg$