A

Major Project

On

Enhancement of E-Government Services with MachineLearning And Artificial Intelligence

(Submitted in partial fulfilment of the requirements for the award of Degree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

By

Yogitha Sree Annangi (197R1A0559)

D Veena Laxmi Gayatri (197R1A0511)

Yarlagadda Chandana Sri(197R1A0557)

Under the Guidance of

B.P.Deepak Kumar

(Assistant Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

(Accredited by NAAC, NBA, Permanently Affiliated to JNTUH, Approved by AICTE, New Delhi)Recognized Under Section 2(f) & 12(B) of the UGCAct.1956, Kandlakoya (V), Medchal Road, Hyderabad-501401.

2019-23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project entitled "**Enhancement of E-Government Services Using Machine Learning and Artificial Intelligence**" being submitted by **Yogitha Sree Annangi(197R1A0559), D Veena Laxmi Gayatri(197R1A0511), Yarlagadda Chandana Sri(197R1A0557)** in partial fulfilment of the requirements for the award of the degree of B.Tech in Computer Science and Engineering to the Jawaharlal Nehru Technological University Hyderabad, is a record of bonafide work carried out by him/her under our guidance and supervision during the year 2022-23. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

B.P.Deepak Kumar
(Assistant Professor)
INTERNAL GUIDE

Dr. A. Raji Reddy
DIRECTOR

Dr. K. Srujan Raju
HOD

EXTERNAL EXAMINER

Submitted for viva voice Examination held on

ACKNOWLEDGEMENT

Apart from the efforts of us, the success of any project depends largely on the encouragement and guidelines of many others. We take this opportunity to express our gratitudeto the people who have been instrumental in the successful completion of this project.

We take this opportunity to express my profound gratitude and deep regard to my guide **Mr.B.P.Deepak Kumar** Assistant Professor for his exemplary guidance, monitoring and constant encouragement throughout the project work.The blessing,help and guidance given by him shall carry us a long way in the journey of life on which we are about to embark. We also take this opportunity to express a deep sense of gratitude to Project Review Committee (PRC) **Mr. Dr.Punyaban Patel, Ms. Shilpa, Dr M. Subha Mastan Raa & Mr. J.Narasimha Rao** for their cordial support, valuable information and guidance, which helped us in completing this task through various stages.

We are also thankful to **Dr. K. Srujan Raju**, Head, Department of Computer Science and Engineering for providing encouragement and support for completing this project successfully.

We are obliged to **Dr. A. Raji Reddy**, Director for being cooperative throughout the course of this project. We also express our sincere gratitude to **Sri. Ch. Gopal Reddy**, Chairman for providing excellent infrastructure and a nice atmosphere throughout the course of this project.

The guidance and support received from all the members of **CMR Technical Campus** who contributed to the completion of the project. We are grateful for their constant support and help.

Finally, we would like to take this opportunity to thank our family for their constant encouragement, without which this assignment would not be completed. We sincerely acknowledge and thank all those who gave support directly and indirectly in the completion of this project.

Yogitha Sree Annangi(197R1A0559)
D Veena Laxmi Gayatri (197R1A0511)
Yarlagadda Chandana Sri(197R1A0557)

ABSTRACT

Recently, AI has boosted the existing state of the art in a growing number of sectors. Some challenges exist that hinder its widespread implementation in egovernment applications, both for the advancement of e-government systems and for people' interaction with government. E-government systems face various hurdles, and in this study, we present a framework that employs AI technology to automate and facilitate e-government services. For begin, we'll draw out a strategy for managing egovernment data assets and information. This is followed by construction of a set of deep learning models targeted at automating numerous government services. On top of that, we've presented an electronic government platform architecture that makes it easy to build and implement AI functionalities. With the aim of reducing processing times, cutting costs, and enhancing citizen happiness, we're aiming to upgrade the current status of e-government services by adopting proven AI approaches.

LIST OF FIGURES

TABLE OF CONTENTS

1.INTRODUCTION

1. INTRODUCTION

1.1 PROJECT SCOPE

E-government is the application of employing advanced electronic techniques–and web services–to present, exchange, and advance the government's services for citizens and businesses with a goal of improving the productivity while reducing the cost. E-government plays a critical role in advancing the economy of the government, citizens, and industry, especially for developing countries. It facilitates the business-to-business transactions and tasks, brings customers closer to businesses, allow productive interactions between the government and citizens, government and enterprises, and inter-agency and relationships is more convenient, transparent and economic ways.

1.2 PROJECT PURPOSE

The ultimate goal of the e-government is to enhance the quality and efficiency of the government services while reducing cost. Moreover, implementing e-government applications can faster several other advantages including, but not limited to transparency, trust, citizen participation, environment support. Providing access to services and government information via transparent and easy-to-use technologies can critically enhance the trust between citizens and government.

1.3 PROJECT FEATURES

In this project, we propose a novel framework that utilizes recent advances in AI to improve the e-government systems and their interactions with the citizens. First, we propose a framework to automate and facilitate the management of e-government systems using AI techniques. Second, we develop and present several deep learning models that aim at automating e-government services for Arabic speaking countries including automatic recognition of hand-written digits and letters and sentiment analysis. Third, we propose an platform for smart e-government services development and implementation.

2.SYSTEM ANALYSIS

2.SYSTEM ANALYSIS

SYSTEM ANALYSIS

System Analysis is the important phase in the system development process. The System is studied to the minute details and analyzed. The system analyst plays an important role of an interrogator and dwells deep into the working of the present system. In analysis, a detailed study of these operations performed by the system and their relationships within and outside the system is done. A key question considered here is, "what must be done to solve the problem?" The system is viewed as a whole and the inputs to the system are identified. Once analysis is completed the analyst has a firm understanding of what is to be done.

2.1 PROBLEM DEFINITION

A detailed study of the process must be made by various techniques like Image processing, feature recognition etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal.

2.2 EXISTING SYSTEM

E-government is the application of employing advanced electronic techniques– and web services–to present, exchange, and advance the government's services for citizens and businesses with a goal of improving the productivity while reducing the cost. Egovernment plays a critical role in advancing the economy of the government, citizens, and industry, especially for developing countries. It facilitates the business-to-business transactions and tasks (B2B), brings customers closer to businesses (B2C), allow

productive interactions between the government and citizens (G2C), government and enterprises (G2B), and inter-agency and relationships (G2G) in more convenient, transparent and economic ways

.

2.3 PROPOSED SYSTEM

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The system provides higher accuracy and reduces the error rate . The existing system has several disadvantages and many more difficulties to work well .The proposed system tries to eliminate or reduce these difficulties up to some extent. The proposed system helps the user to work user friendly and he can easily do his jobs without time lagging.

2.3.1 ADVANTAGES OF THE PROPOSED SYSTEM

The system is very simple in design and to implement. The system requires very low system resources and the system will work in almost all configurations. It has got following features

- Hand-written letters recognition
- Hand-written digits recognition
- Sentiment analysis
- Facial expression analysis

2.4 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is putforth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure

that the proposed system is not a burden to the company. Three key considerations involved in the feasibility analysis are

- Economic Feasibility
- Technical Feasibility
- Social Feasibility

2.4.1 ECONOMIC FEASIBILITY

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require.

The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also, all the resources are already available, it give an indication of the system is economically possible for development.

2.4.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4.3 BEHAVIORAL FEASIBILITY

This includes the following
Is there sufficient support for the users?

Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

2.5.HARDWARE & SOFTWARE REQUIREMENTS

2.5.1 HARDWARE REQUIREMENTS

Hardware interfaces specifies the logical characteristics of each interface between the software product and the hardware components of the system. The following are some hardware requirements.

Processor	:	i3.
Hard disk	:	40 and above.
RAM	:	4GB and above.
GPU	:	2GB(optional)

2.5.2 SOFTWARE REQUIREMENTS

Software Requirements specifies the logical characteristics of each interface and software components of the system. The following are some software requirements:

Operating system	:	Windows 10
Languages	:	Python
Backend	:	Machine Learning
IDE	:	Jupyter
Date sets	:	Data sets from Online Resources

3.ARCHITECTURE

3. ARCHITECTURE

3.1 PROJECT ARCITECTURE

The management of information resources plays a critical role in the overall pipeline of e-government services from collecting end-user data, to storage, and processing. we propose an architecture for centralized management of e-government information resources that mainly focuses on the utilization of AI, Big Data, and Internet of Things.

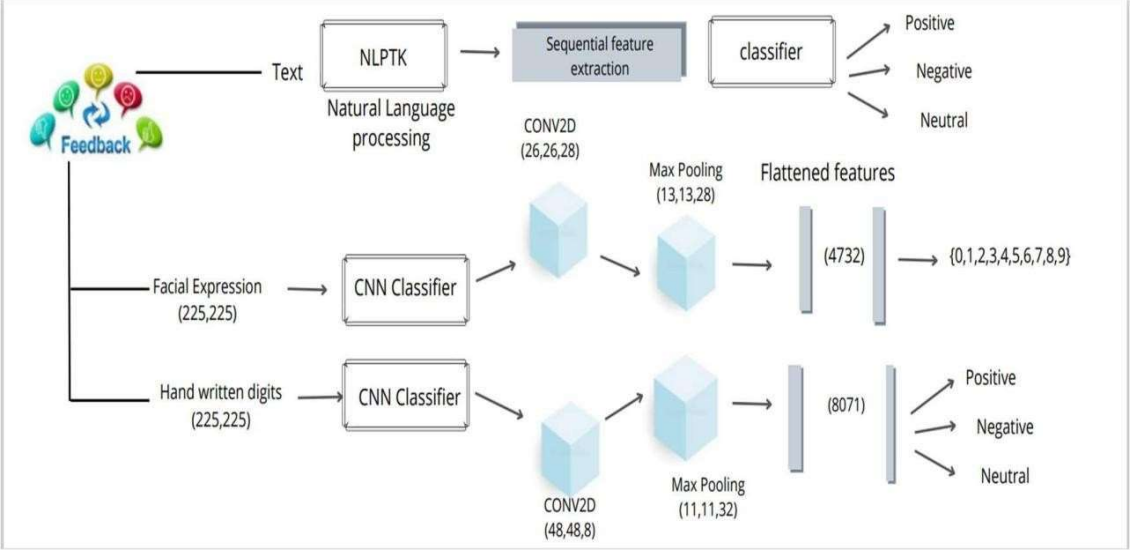


Figure 3.1: An architecture overview for a centralized e-government information management framework

Our proposed framework consists of four main components: Government Collective Office Network, Big Data Services Centre, Social Public and Research, and Intelligent Archives. These components utilize the advances in cutting-edge technology to enhance and facilitate the production, processing, and presentation of e-government resources, including, Cloud Computing services, Internet of Things, AI, and Storage utilities. The Government Collective Office Network is responsible to implement and ensure the correctness of e-government policies and services in alignment with all government offices and agencies. Big Data Services Centre is responsible for all processes and policies regarding Big Data (collecting, storing, processing, transmitting). Moreover, this unit plays a critical role in ensuring the privacy and security of the citizens and government data. Social Public and Research is the unit responsible for providing eservices for the citizens and research organizations. It also includes a research agency concerned with advancing the current state of e-government ecosystem.

It provides smart and personalized services to other units that require accessing and consuming digital data.

3.2 USE CASE DIAGRAM

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses. The actors are often shown as stick figures..

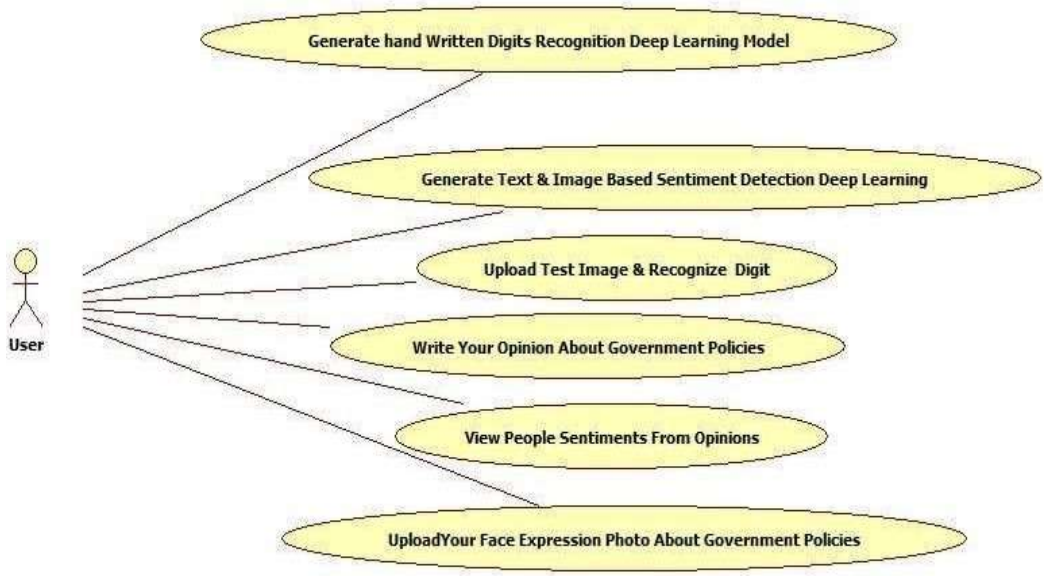


Figure 3.2: Use Case Diagram for E-government Systems

3.3 CLASS DIAGRAM

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object-oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.

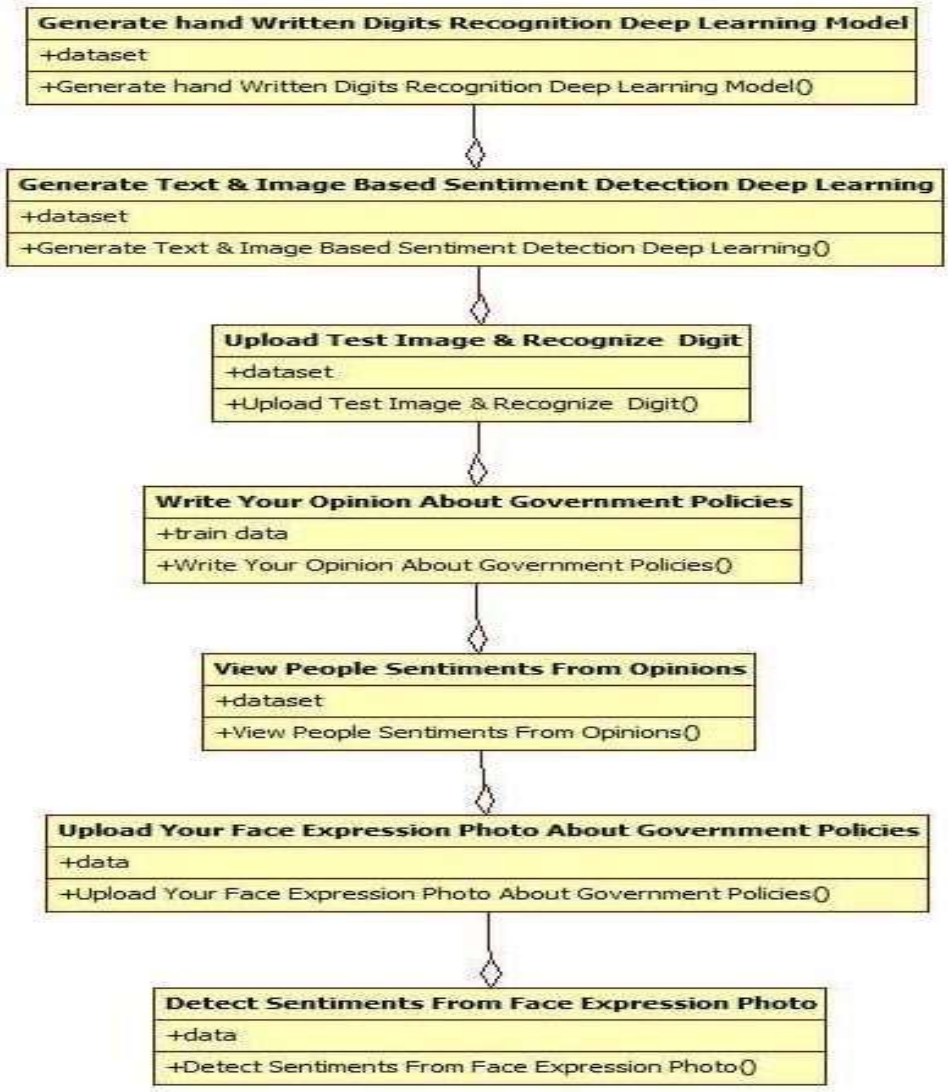


Figure 3.3: Class Diagram for E-government Systems

3.4 DATA FLOW DIAGRAM

A data flow diagram shows the way information flows through a process or system. It includes data inputs and outputs, data stores, and the various subprocesses the data moves through. DFDs are built using standardized symbols and notation to describe various entities and their relationships.

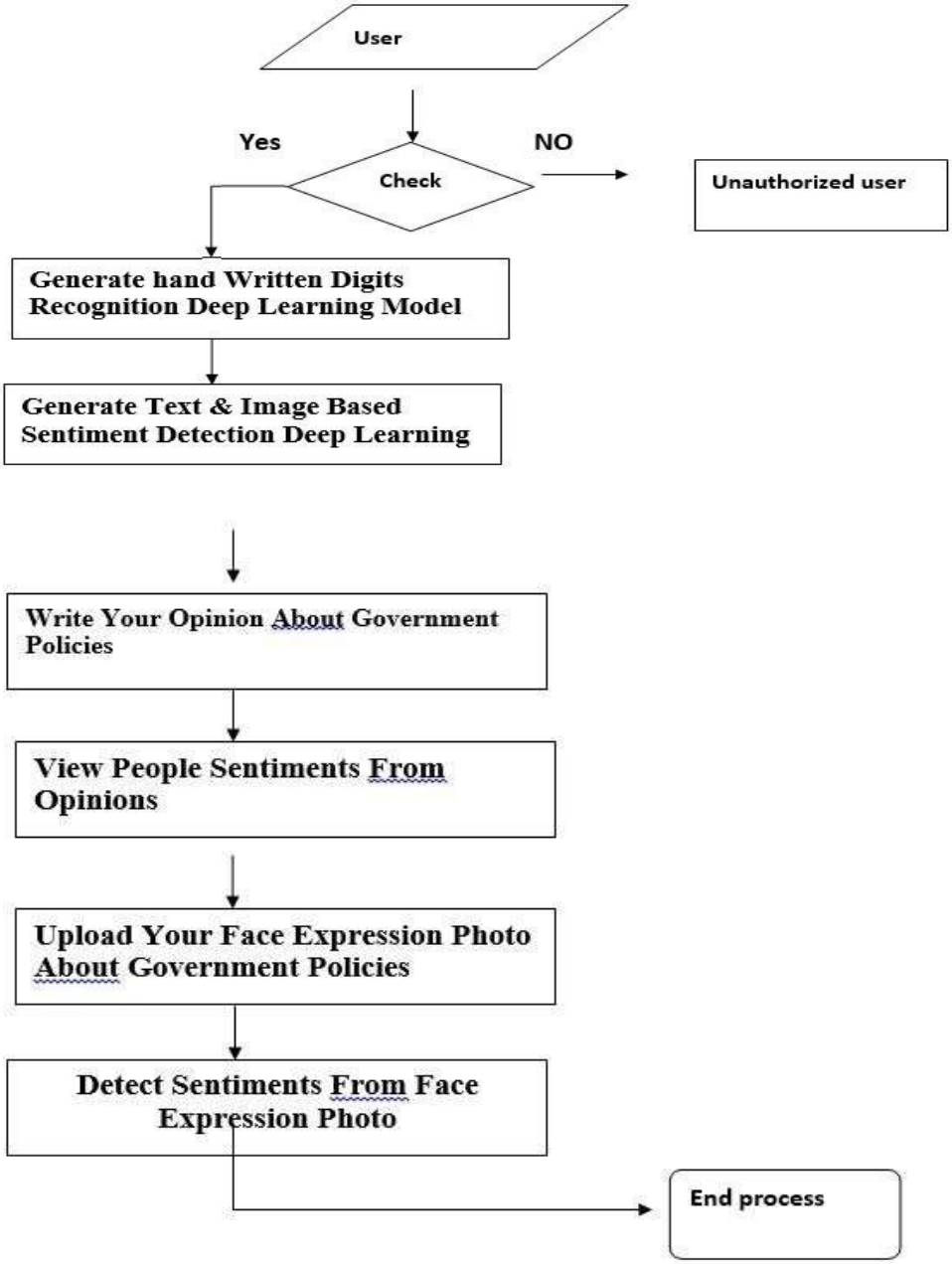


Figure 3.4: Flow diagram for E government Systems

3.5 ACTIVITY DIAGRAM

We use Activity Diagrams to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case. We model sequential and concurrent activities using activity diagrams. We basically depict workflows visually using an activity diagram. An activity diagram focuses on condition of flow and the sequence in which it happens. We describe or depict what causes a particular event using an activity.

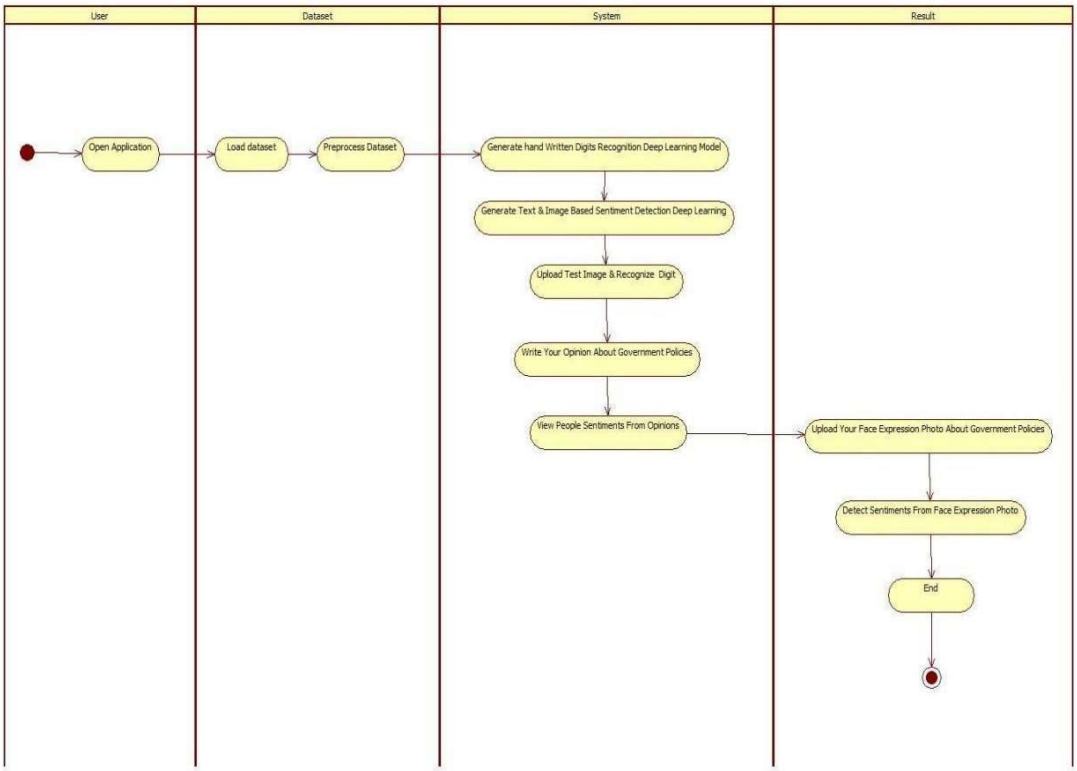


Figure 3.5: Activity Diagram for E-government System

3.6 STATE DIAGRAM

In a state diagram, as the name suggests, each object in the system is represented by a separate state. The system's objects undergo state transitions in response to external events. State diagrams are also used to show how an object's current state changes over time, in response to events in the system.

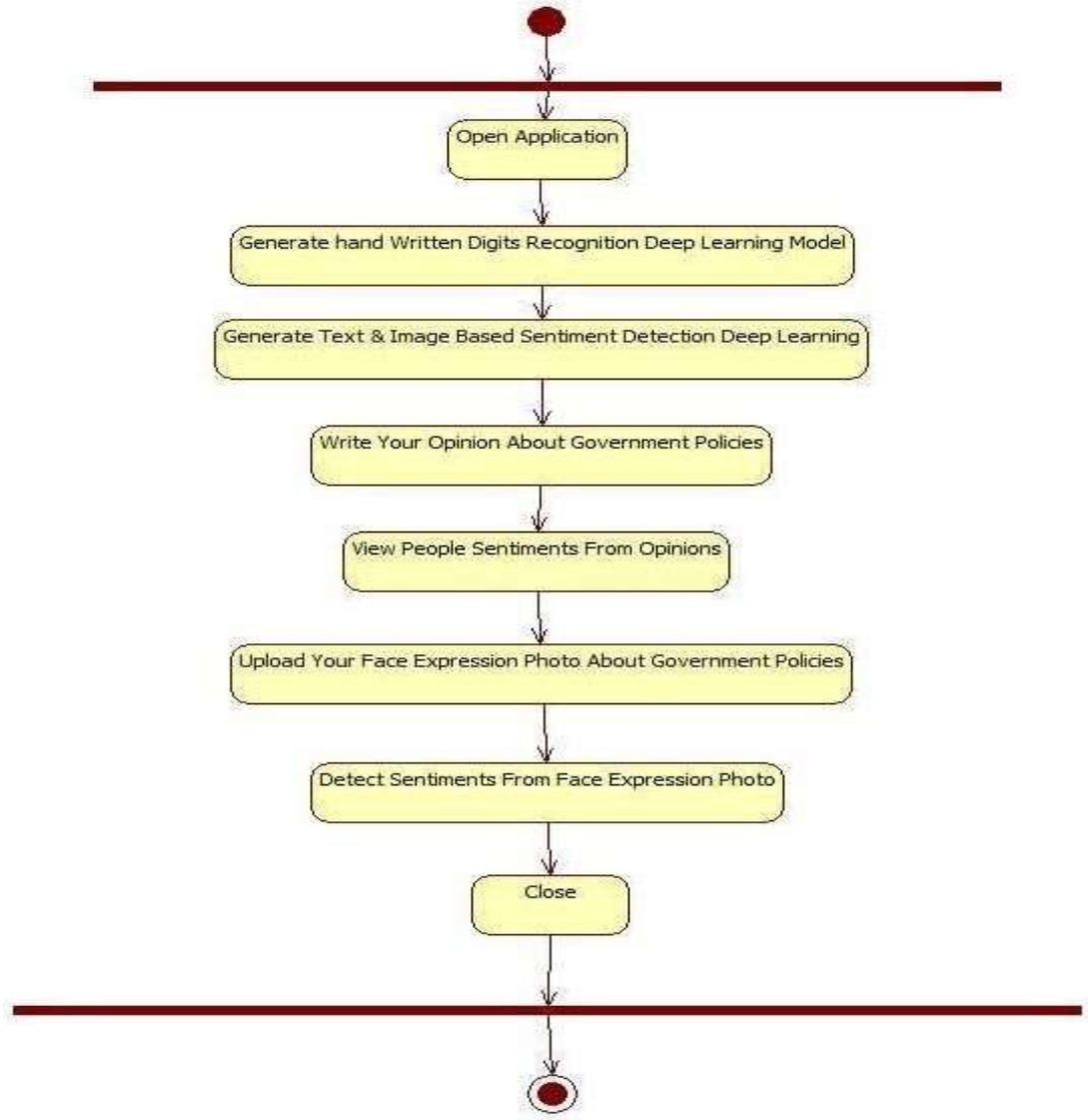


Figure 3.6: State Diagram for E-government System

3.7 SEQUENCE DIAGRAM:

A sequence diagram depicts the relationships among the various parts of a system. Chronological order is the most important characteristic of any sequence diagram. As another way of saying that everything is shown in sequential sequence. There are several "messages" passed between the diagram's many elements.

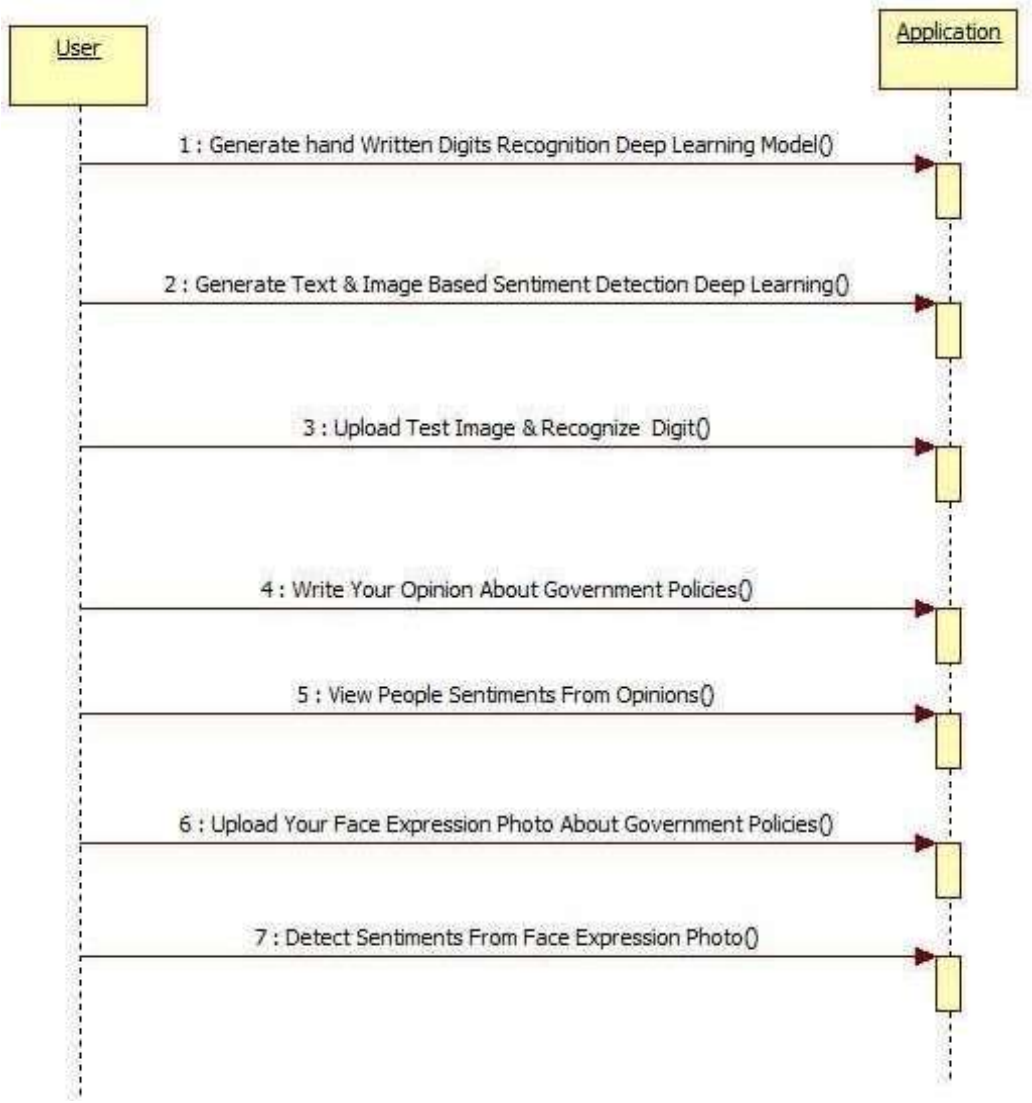


Figure 3.7: Sequence diagram for E-government System

4.IMPLEMENTATION OF SYSTEM

4.1 MODULES DESCRIPTION

1) Recognize handwritten digits generated by the generator CNN-based handwritten models that use digit images as input and then predict the number's name using this model are being developed using Deep Learning. In order to create a CNN model, you must first take two typesof images, known as train and test, which comprise all the conceivable forms of digits that a human may write (Using test images train model will be tested whether its giving better prediction accuracy). In order to develop a training model, CNN will use all train images. We'll use train images to extract features and then create a model as we're creating the model. In order to classify the test image, we will first extract features from the image and then apply the train model to it.
2) Develop Sentiment Analysis Using Text and Image Data Using this module, we will create a sentiment detection model based on text and images. To create a text-based sentiment model,we'll employ any and all available words, both positive and negative. A emotion model based on photos of facial expressions will be created. Inputs such as text or images will be fed into a training model, which will then attempt to infer the sentiment behind them.

   In order to use this module, we will submit a text image and apply a train model to recognize digits by utilizing this module.

   In this module, we'll collect the user's opinion and save it in the program so that sentiment canbe detected from the user's opinion. All users' opinions can be viewed in this module, as well as their sentiments as determined bythe CNN model.

   When asked about government policies, the user can upload a photograph of their face expression and indicate whether or not they are satisfied with the system.

   Different users can see the facial expression image and the identified sentiment that previous users have uploaded using this module.

4.2 CNN

Using AI to automate government functions, such as the Convolution Neural NetworksDeep Learning algorithm, is discussed in this study (CNN). For the government, launching new projects online provides an opportunity to engage directly with its citizens, who may thenread

about them in the media and express their views in blog postings and other public criticism. In order to automatically detect public opinion on plans, artificial intelligence software similar to human brains is required, and this program must be able to tell if the opinions stated are good or negative.

A CNN can have multiple layers, each of which learns to detect the different features of an input image. A kernel is applied to each image to produce an output that gets progressively better and more detailed after each layer. In the lower layers, the filters can start as simple features.

At each successive layer, the filters increase in complexity to check and identify features that uniquely represent the input object. Thus, the output of each convolved image -- the partially recognized image after each layer -- becomes the input for the next layer. In the last layer, which is an FC layer, the CNN recognizes the image or the object it represents.

With convolution, the input image goes through a set of these filters. As each filter activates certain features from the image, it does its work and passes on its output to the filter in the next layer. Each layer learns to identify different features and the operations end up being repeated for dozens, hundreds or even thousands of layers. Finally, all the image data progressing through the CNN's multiple layers allow the CNN to identify the entire object.

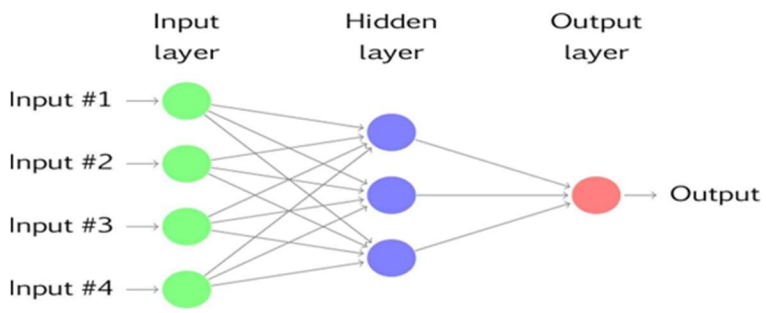
Moreover, the problem of overfitting also arises over time, wherein the NN tries to learn too many details in the training data. It may also end up learning the noise in the data, which affects its performance on test data sets. Ultimately, the NN fails to identify the features or patterns in the data set and thus the object itself.

In contrast, a CNN uses parameter sharing. In each layer of the CNN, each node connects to another. A CNN also has an associated weight; as the layers' filters move across the image, the weights remain fixed -- a condition known as parameter sharing. This makes the whole CNN system less computationally intensive than an NN system.

To design an automated opinion detection system, the author recommends using a CNN model that functions like a human brain. Automatic decision-making without human intervention is possible with this CNN model, which can be built for a variety of services. For any service, we can construct this CNN model. Human handwritten digits can be detected and recognized by one model, while sentiment from text sentences describing government goals can be detected by another. To suggest this technique, the author has already described the concept of applying several models. As part of our expansion, we've added a new model that can detectemotions in a photograph of a person's face. The expressions on a person's face are significantly more powerful than words or sentences at conveying their emotions. ' As a result,we've created a new application for our business that uses face pictures to gauge a person's emotional condition.

Using a convolutional neural network, we will demonstrate how to design an image classifier that can identify and distinguish between two images. The smaller the network, the more efficient it will be on a CPU. Traditional neural networks that are good at photo classification take a long time to train because they contain a lot of parameters and demand a lot of computing power. However, our goal is to explain how to build a real-world convolutional neural network utilizing TENSORFLOW.

When it comes to solving optimization problems, neural networks are mathematical models that can be applied. Neurons are the building blocks of neural networks because they serve asthe basic computational unit. As an example, a neuron gets an input (say, x) and does some computation on it (say, multiplying it by w and then adding another variable b). For a neuronto produce its final output (activation), an activation function (f) is used. There are many different types of activation functions. One of the most commonly used activation functions is sigmoid. Neurons that use the sigmoid function are called "sigmoid neurons," and this term refers to neurons that are stimulated by this function. RELU and TanH are two examples of neurons whose activation functions are named after them.



4.3 SAMPLE CODE

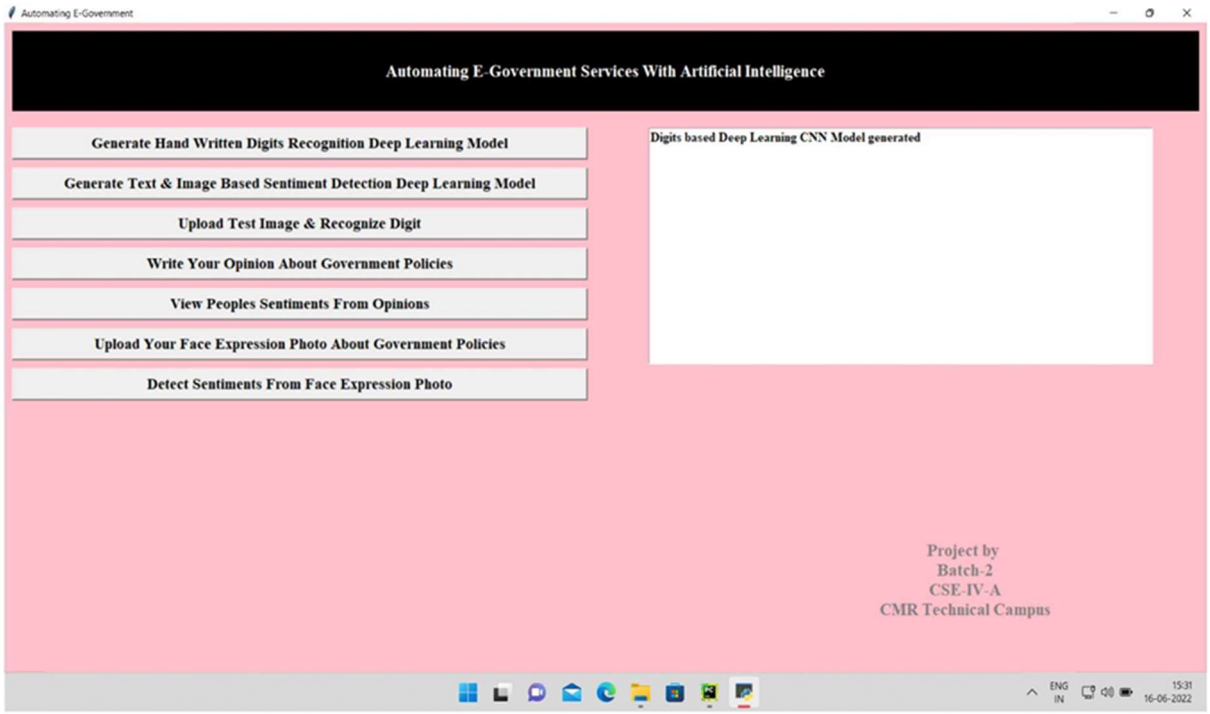
```
from tkinter import messagebox

from tkinter import *
from tkinter import simpledialog
import tkinter
from tkinter import filedialog
from tkinter.filedialog import askopenfilename

import matplotlib.pyplot as plt
import numpy as np
import joblib
# from sklearn.externals import joblib
from keras.models import load_model
from keras.preprocessing.image import img_to_array
import cv2
from keras.models import model_from_json
from keras.preprocessing import image
# from keras.optimizers import Adam
from keras.utils import np_utils
from keras.preprocessing import image
import os
from numpy import dot
from numpy.linalg import norm

from keras.models import Sequential
from keras.layers import Dense, Conv2D, Dropout, Flatten, MaxPooling2D
import imutils
import nltk
main = tkinter.Tk() main.title("Automating E-
Government") main.geometry("1300x1200")
mainframe=Frame(main,bg="pink")
mainframe.pack(fill='both',expand=True)
                                        global filename
```

```
global text_sentiment_model

    pred = digits_cnn_model.predict(imagetest.reshape(1, 28, 28, 1))

 predicted = str(pred.argmax())
    imagedisplay = cv2.imread(filename)
    orig = imagedisplay.copy()
    output = imutils.resize(orig, width=400)
    cv2.putText(output, "Digits Predicted As : " + predicted, (10, 25),
cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0, 255, 0), 2)
    cv2.imshow("Predicted Image Result", output)
    cv2.waitKey(0)
def opinion():
    user = simpledialog.askstring("Please enter your name", "Username")
    opinion = simpledialog.askstring("Government Service Opinion",
                                     "Please write your Opinion about government services & policies")f =
    open("Peoples_Opinion/opinion.txt", "a+")
    f.write(user + "#" + opinion + "\n")
    f.close()
    messagebox.showinfo("Thank you for your opinion", "Your opinion saved for reviews")def
stem(textmsg):
    stemmer = nltk.stem.PorterStemmer()
    textmsg_stem = ''
    textmsg = textmsg.strip("\n")
    words = textmsg.split(" ")
    words = [stemmer.stem(w) for w in words]
    textmsg_stem = ' '.join(words)
    return textmsg_stemdef
viewSentiment():
    text.delete('1.0', END)
    with open("Peoples_Opinion/opinion.txt", "r") as file:for
        line in file:
```

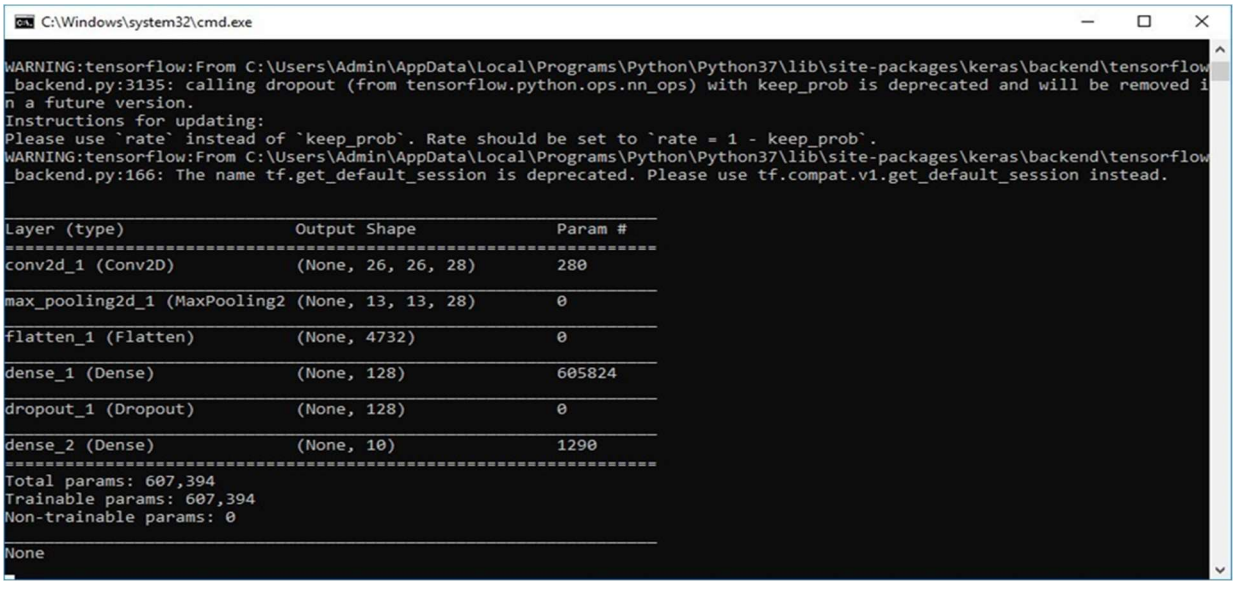
```
line = line.strip('\n')
line = line.strip() arr =
 line.split("#")
text_processed = stem(arr[1])
X = [text_processed]
roi = cv2.resize(roi, (48, 48)) roi =
roi.astype("float") / 255.0roi =
img_to_array(roi)
roi = np.expand_dims(roi, axis=0)
preds = image_sentiment_model.predict(roi)[0]
emotion_probability = np.max(preds)
label =  EMOTIONS[preds.argmax()] msg =
"Sentiment detected as : " + label img_height,
img_width = frame.shape[:2]
EMOTIONS = ["angry", "disgust", "scared", "happy", "sad", "surprised", "neutral"]global
face_detection
global image_sentiment_model
global digits_cnn_model
                    def digitModel():
                        global digits_cnn_model
                        with
                            open('models/digits_cnn_model.json',
                            "r") as json_file:loaded_model_json =
                            json_file.read()
                            digits_cnn_model =
                        model_from_json(loaded_model_json)
                        digits_cnn_model.load_weights("models/digits_
                        cnn_weights.h5")#
                        digits_cnn_model._make_predict_function()
text_sentiment_model = joblib.load('models/sentimentModel.pkl') text.insert(END, 'Text
based sentiment Deep Learning CNN Model generated\n')
        face_detection = cv2.CascadeClassifier('models/haarcascade_frontalface_default.xml')
image_sentiment_model=load_model('models/_mini_XCEPTION.106-0.65.hdf5',
```

```
compile=False)
    text.insert(END, 'Image based sentiment Deep Learning CNN Model generated\n')
    print(image_sentiment_model.summary())
def digitRecognize():
    global filename
    filename = filedialog.askopenfilename(initialdir="testImages")
    pathlabel.config(text=filename)
    text.delete('1.0', END)
    text.insert(END, filename + " loaded\n");
    imagetest = image.load_img(filename, target_size=(28, 28), grayscale=True)
    imagetest = image.img_to_array(imagetest)
    imagetest = np.expand_dims(imagetest, axis=0)
```

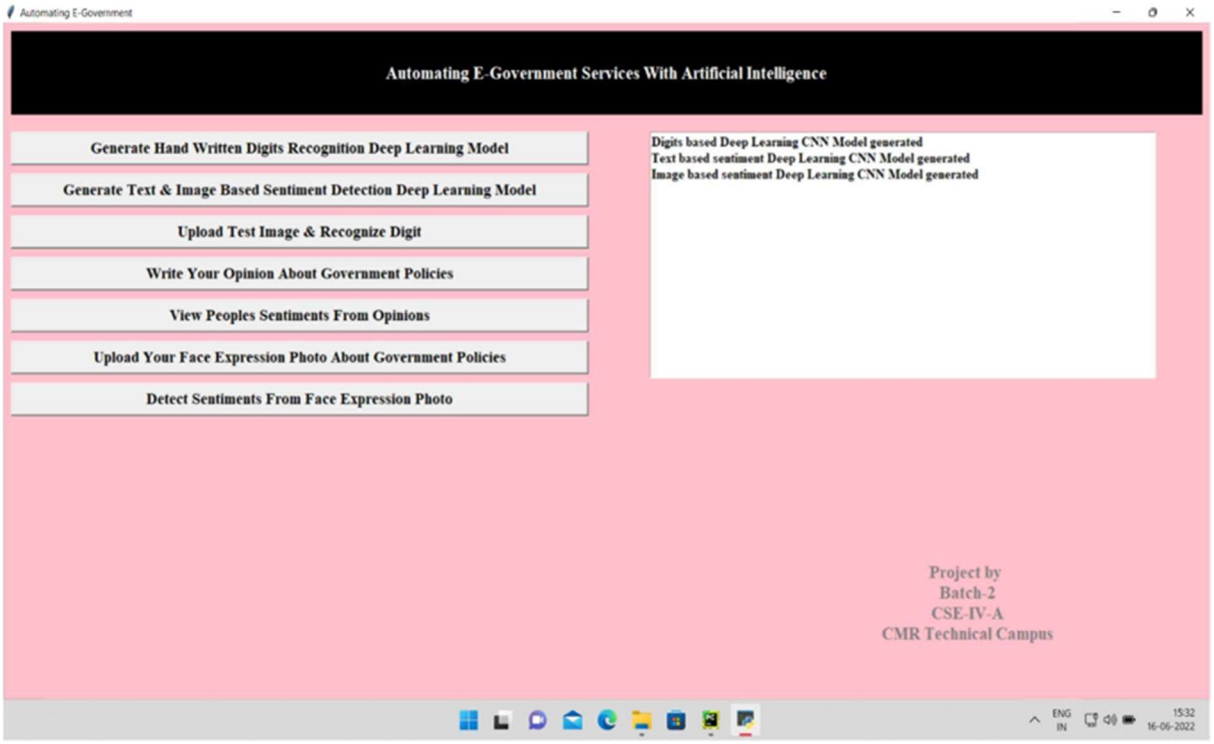
5.SCREENSHOTS



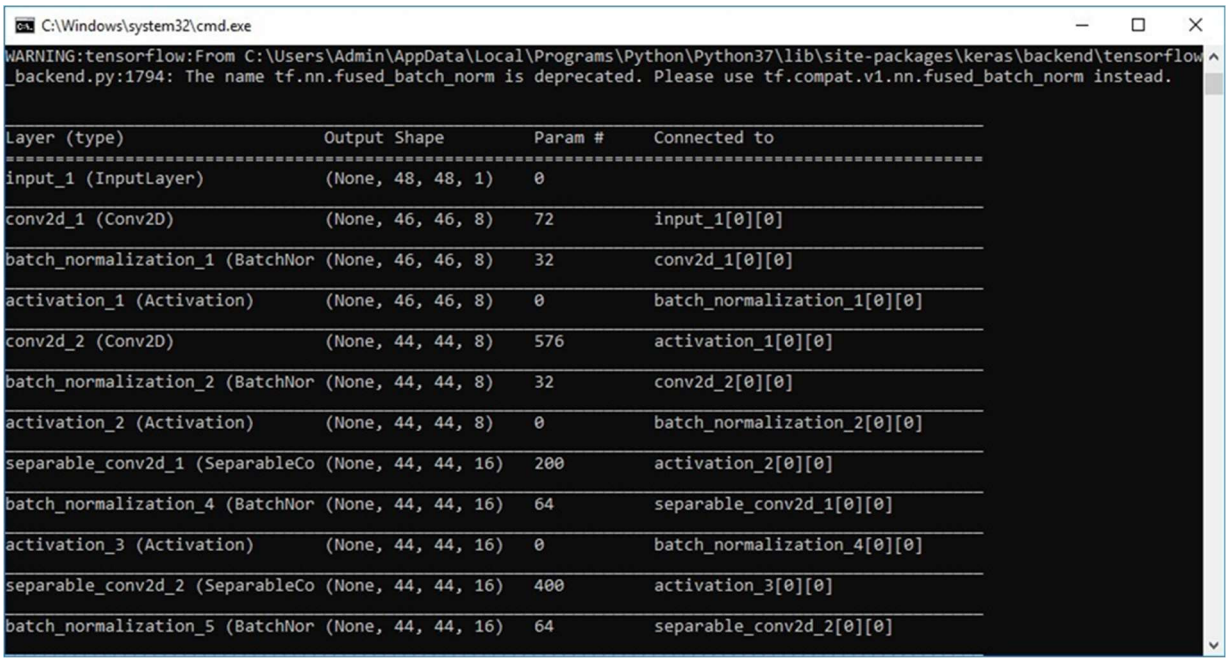
Screenshot 5.1: Digits based deep learning CNN model generated



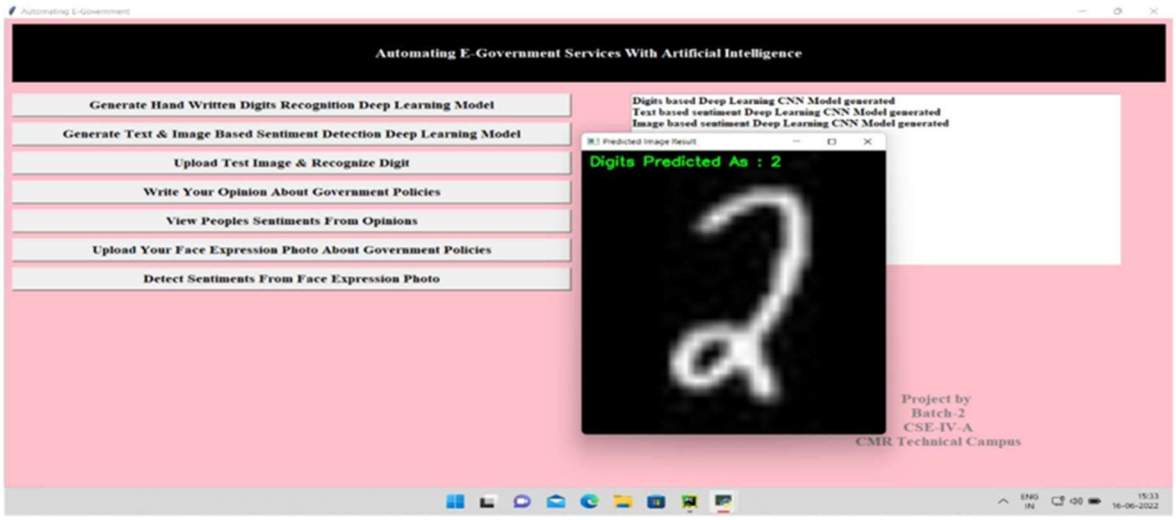
Screenshot 5.2: Digits based deep learning CNN model results



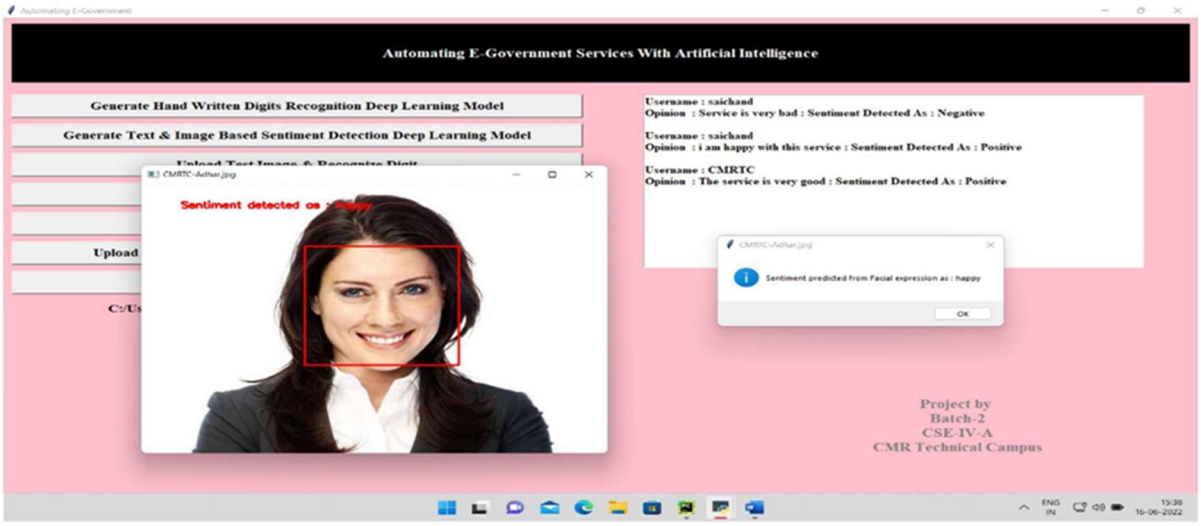
Screenshot 5.3: Sentiment based deep Learning CNN model generated



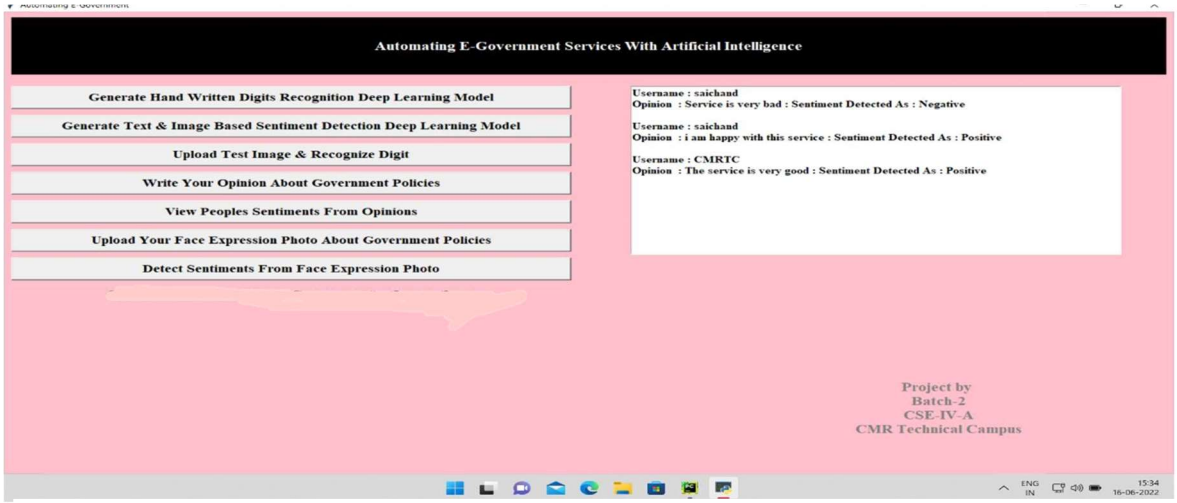
Screenshot 5.4: Sentiment based deep Learning CNN model results



Screenshot 5.5: Digit based deep Learning CNN model detected the digit 2.



Screenshot 5.6 (a): Sentiment based deep Learning CNN model detected facial expression as happy.



Screenshot 5.6 (b): Sentiment based deep Learning CNN model classified entered text

6. TESTING

6.1 INTRODUCTION TO TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discovery conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of tests. Each test type addresses a specific testing requirement.

6.2 TYPES OF TESTING

6.2.1 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

6.2.2 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

6.2.3 FUNCTIONAL TESTING

Functional tests provide systematic demonstrations that functions tested are available asspecified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.
Invalid Input : identified classes of invalid input must be
Functions : identified functions must be exercised.
Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Businessprocess flows; data fields, predefined processes.

6.3 TEST IMAGES

6.3.1 UPLOADING IMAGES

Test case ID	Test case name	Purpose	Test Case	Output
1	User uploads image	Use it for identification	The user uploads the digit image	Uploaded successfully
2	User uploads 2nd image	Use it for identification	The user uploads the a facial expression image	Uploaded successfully

6.3.2 CLASSIFICATION

Test case ID	Test case name	Purpose	Input	Output
1	Classification test 1	To check if the classifier performs its task	Digit one image is given	Detected as digit one
2	Classification test 2	To check if the classifier performs its task	Happy facial expression image	The expression detected as happy
3	Classification test 3	To check if the classifier performs its task	A positive phrase is given to detect the sentiment	Detected as positive

7. CONCLUSION AND FUTURE SCOPE

CONCLUSION:

The recent developments in AI and deep learning have prompted more government entities to adopt these technologies to improve their systems and services. These technologies face a wide range of barriers, including a shortage in specialists, computational resources and public trust,as well as the ability to understand AI. Once we had briefly discussed the current condition of e-government indexes around the world, we next presented our own solutions to help improvethe current state of e-government by using the Gulf Countries as a case study After that, we went over what artificial intelligence (AI) and electronic government (e-government) meant. We've come up with a complete strategy for managing government information resources. Many government operations could benefit from the automation and facilitation provided by deep learning techniques. After then, a smart platform for the development and implementation of AI was made available. This paper's overarching purpose is to propose new frameworks and platforms for integrating AI methods into e-government systems and services.

FUTURE SCOPE:

It is hoped that the protocol for modifying policies rather than the method will be further studiedand improved. There are numerous governments throughout the world that have adopted and defined this strategy in an effort to improve public trust in government, bolster democracy, andprovide better government services.

8. BIBLIOGRAPHY

8.1 REFERENCES

[1] K. He, X. Zhang, S. Ren, and J. Sun, ‘‘Deep residual learning for image recognition,’’ in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 770–778.

[2] Y.-D. Zhang, Y. Zhang, X.-X. Hou, H. Chen, and S.-H. Wang, ‘‘Sevenlayer deep neural network based on sparse autoencoder for voxelwise detection of cerebral microbleed,’’ Multimedia Tools Appl., vol. 77, no. 9, pp. 10521–10538, May 2018.

[3] S. Venugopalan, H. Xu, J. Donahue, M. Rohrbach, R. Mooney, and K. Saenko, ‘‘Translating videos to natural language using deep recurrent neural networks,’’ 2014, arXiv:1412.4729. [Online]. Available: https://arxiv.org/abs/1412.4729

[4] D. Silver, A. Huang, C. J. Maddison, A. Guez, L. Sifre, G. van den Driessche, J. Schrittwieser, I. Antonoglou, V. Panneershelvam, M. Lanctot, S. Dieleman, D. Grewe, J. Nham, N. Kalchbrenner, I. Sutskever, T. Lillicrap, M. Leach, K. Kavukcuoglu, T. Graepel, and D. Hassabis, ‘‘Mastering the game of Go with deep neural networks and tree search,’’ Nature, vol. 529, no. 7587, pp. 484–489, 2016.

[5] C. Bishop, Pattern Recognition and Machine Learning. New York, NY, USA: Springer, 2006.