INTERNATIONAL JOURNAL OF TECHNO-ENGINEERING
IJTE

ISSN: 2057-5688

AUTOMATING E-GOVERNMENT SERVICES USING AI

[1]G. TEJASWINI , [2]DASARI RANJITH,[3]NANNURU SHIVA KRISHNA REDDY,[4] VUPPALA NITHISH KUMAR

[1]Assistant Professor, Dept.of CSE, Teegala Krishna Reddy Engineering College, Meerpet, Hyderabad,

[2,3,4]BTech Student, Dept.of CSE, Teegala Krishna Reddy Engineering College, Meerpet, Hyderabad

dasariranjith33@gmail.com,Shivakrishnareddyn@gmail.com,nithishkumarvuppala222@gmail.com

ABSTRACT: *Artificial Intelligence (AI) has recently advanced the state-of-art results in an ever-growing number of domains. We address the challenges of e-government systems and propose a framework that utilizes them. Specifically, we first outline a framework for the management of e-government information resources. Second, we develop a set of deep learning models that aim to automate several e-government services. Third, we propose a smart e-government platform architecture that supports the development and implementation of AI applications for e-government.*

Keywords: Artificial Intelligence, e-government services, machine learning.

I. INTRODUCTION

It can make it easier for citizens to access services. Citizens can simply log in to a website or mobile app and complete their transactions without having to visit a government office. This is especially beneficial for citizens who live in remote areas or who have disabilities that make it difficult to travel.AI can process transactions much faster than humans, and it can also identify and correct errors. This can help to reduce the time it takes for citizens to receive the services they need. his can help to improve the quality of services and increase citizen satisfaction.

The scope of the project automating e-govt services in AI is to use artificial intelligence (AI) to automate a wide range of e-government services. This includes services such as: Citizen registration, Tax collection, Social welfare, Education and Healthcare.

The purpose of the project is to improve the efficiency, accuracy, accessibility, and transparency of e-government services. AI has the potential to automate many of the

ISSN: 2057-5688

manual tasks that are currently required to provide e - government services. This can lead to increased efficiency and reduced costs. AI can also be used to improve the accuracy of e-government services. For example, AI can be used to identify fraudulent documents or to detect errors in data entry. AI can also be used to make e-government services more accessible to people with disabilities or who live in remote areas.

II. LITERATURE SURVEY

The authors found that the most common AI techniques used in egovernment are machine learning, natural language processing, and image processing. The most common e-government applications that have been automated using AI are citizen services, business services, and government operations. The challenges of using AI in e-government include the lack of data, the need for specialized skills, and the cost of implementation. The opportunities of using AI in e-government include improved efficiency, accuracy, and transparency.

This paper discusses the potential impact of AI on e-government. The authors argue that AI has the potential to revolutionize e-government by making it more efficient, effective, and accessible. They identify three key areas where AI is likely to have a major impact on e-government: citizen services, business services, and government operations. In the area of citizen services, AI can be used to automate tasks such as processing tax returns, applying for benefits, and renewing licenses. This can save citizens time and money, and it can also make it easier for citizens to access government services. In the area of business services, AI can be used to automate tasks such as processing payments, managing contracts, and providing customer support. This can save businesses time and money, and it can also improve the quality of customer service. In the area of government operations, AI can be used to automate tasks such as managing budgets, tracking compliance, and detecting fraud. This can save governments time and money, and it can also improve the efficiency and effectiveness of government operations. The authors conclude that AI has the potential to make a major impact on e-government. They argue that governments should start planning for the future of e-government now, and they should consider how AI can be used to improve the delivery of government services.

ISSN: 2057-5688

The study uses the systematic literature review methodology prescribed for software science. Of over 500 resulting articles, the final relevant number of articles is 29. The results include a large cross-section of disciplinary approaches. One surprise result is that even technical articles considered the ramifications of the use of AI in government services on underserved populations. The field of use of AI in government services for service provision is still a new area of investigation and more literature is being published constantly. Because of this, a recommendation for potential areas of future research include readiness assessment frameworks and security.

III. PROPOSED SYSTEM

In this project author describing concept to automate government services with Artificial Intelligence technology such as Deep Learning algorithm called Convolution Neural Networks (CNN). Government can introduce new schemes on internet and peoples can read news and notifications of such schemes and then peoples can write opinion about such schemes and this opinions can help government in taking better decisions. To detect public opinions about schemes automatically we need to have software like human brains which can easily understand the opinion which peoples are writing is in favour of positive or negative. To build such automated opinion detection author is suggesting to build CNN model which can work like human brains. This CNN model can be generated for any services and we can make it to work like automated decision making without any human interactions. To suggest this technique author already describing concept to implement multiple models in which one model can detect or recognize human hand written digits and second model can detect sentiment from text sentences which can be given by human about government schemes. In our extension model we added another model which can detect sentiment from person face image. Person face expressions can describe sentiments better than words or sentences. So our extension work can predict sentiments from person face images.

SYSTEM ARCHITECTURE

INTERNATIONAL JOURNAL OF TECHNO-ENGINEERING
IJTE
ISSN: 2057-5688

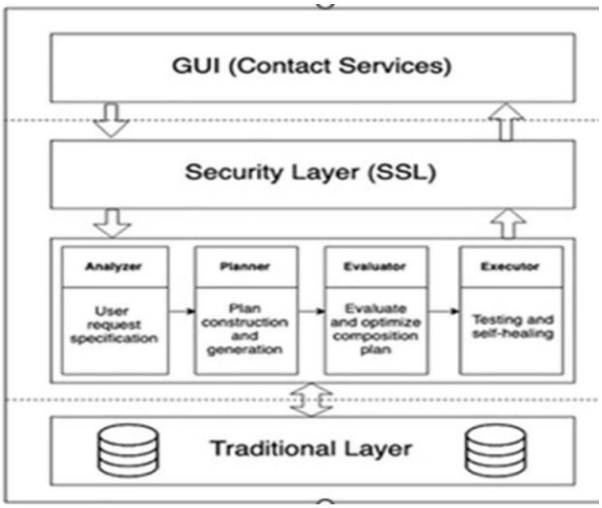

Fig.1 System architecture

CONVOLUTION NEURAL NETWORKS:

To demonstrate how to build a convolutional neural network based image classifier, we shall build a 6 layer neural network that will identify and separate one image from other. This network that we shall build is a very small network that we can run on a CPU as well. Traditional neural networks that are very good at doing image classification have many more parameters and take a lot of time if trained on normal CPU. However, our objective is to show how to build a real-world convolutional neural network using TENSORFLOW. Neural Networks are essentially mathematical models to solve an optimization problem. They are made of neurons, the basic computation unit of neural networks. A neuron takes an input (say x), do some computation on it (say: multiply it with a variable w and adds another variable b) to produce a value (say; z= wx + b). This value is passed to a nonlinear function called activation function (f) to produce the final output (activation) of a neuron. There are many kinds of activation functions. One of the popular activation function is Sigmoid. The neuron which uses sigmoid function as an activation function will be called sigmoid neuron. Depending on the activation functions, neurons are named and there are many kinds of them like RELU, TanH. If you stack neurons in a single line, it's called a layer; which is the next building block of neural networks. See below image with layers

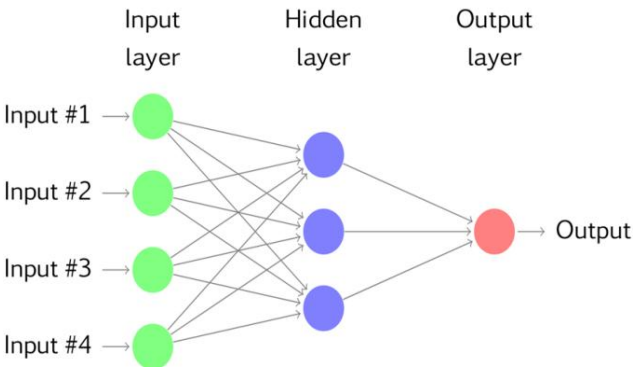

Fig.2 CNN Layer

To predict image class multiple layers operate on each other to get best match

ISSN: 2057-5688

layer and this process continues till no more improvement left.

NLP ALGORITHM:

Natural language processing (NLP) refers to the branch of computer science—and more specifically, the branch of artificial intelligence or AI—concerned with giving computers the ability to understand text and spoken words in much the same way human beings can.

NLP combines computational linguistics—rule-based modeling of human language—with statistical, machine learning, and deep learning models. Together, these technologies enable computers to process human language in the form of text or voice data and to 'understand' its full meaning, complete with the speaker or writer's intent and sentiment.

NLP drives computer programs that translate text from one language to another, respond to spoken commands, and summarize large volumes of text rapidly—even in real time. There's a good chance you've interacted with NLP in the form of voice-operated GPS systems, digital assistants, speech-to-text dictation software, customer service chatbots, and other consumer conveniences. But NLP also plays a growing role in enterprise solutions that help streamline business operations, increase employee productivity, and simplify mission-critical business processes.

• Speech recognition, also called speech-to-text, is the task of reliably converting voice data into text data. Speech recognition is required for any application that follows voice commands or answers spoken questions. What makes speech recognition especially challenging is the way people talk—quickly, slurring words together, with varying emphasis and intonation, in different accents, and often using incorrect grammar.

• Part of speech tagging, also called grammatical tagging, is the process of determining the part of speech of a particular word or piece of text based on its use and context. Part of speech identifies 'make' as a verb in 'I can make a paper plane,' and as a noun in 'What make of car do you own?'

• Word sense disambiguation is the selection of the meaning of a word with multiple meanings through a process of semantic analysis that determine the word that makes the most sense in the given context. For example, word sense disambiguation helps distinguish the

ISSN: 2057-5688

meaning of the verb 'make' in ‘make the grade’ (achieve) vs. ‘make a bet’ (place).

• Named entity recognition, or NEM, identifies words or phrases as useful entities. NEM identifies ‘Kentucky’ as a location or ‘Fred’ as a man's name.

IV. RESULTS

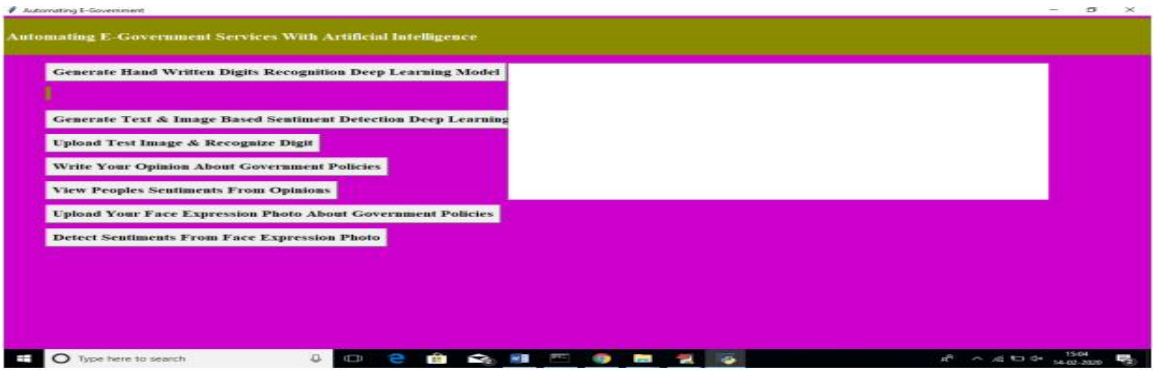

Fig.3 In above screen click on ‘Generate Hand Written Digits Recognition Deep Learning Model’ button to generate CNN digits recognition model .

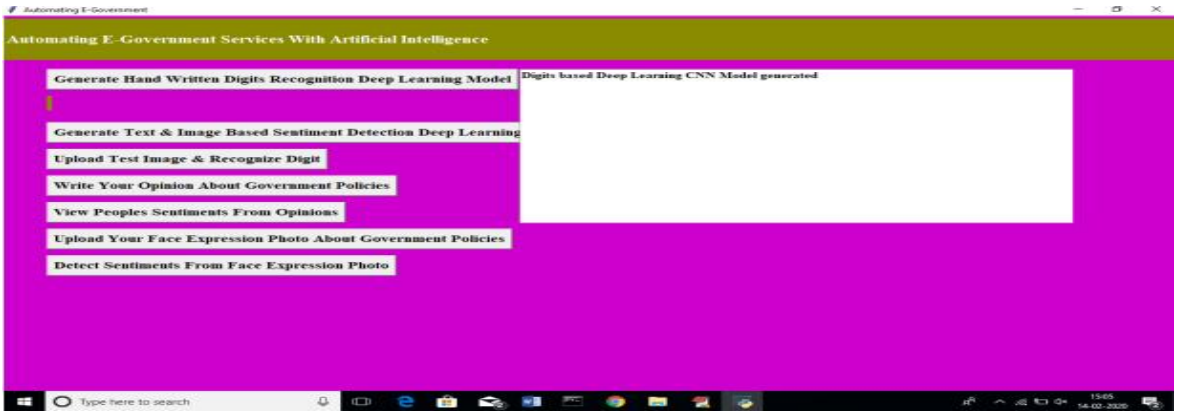

Fig.4 In above screen we can see digits model generated and CNN layer details you can see black console.

INTERNATIONAL JOURNAL OF TECHNO-ENGINEERING
IJTE
ISSN: 2057-5688

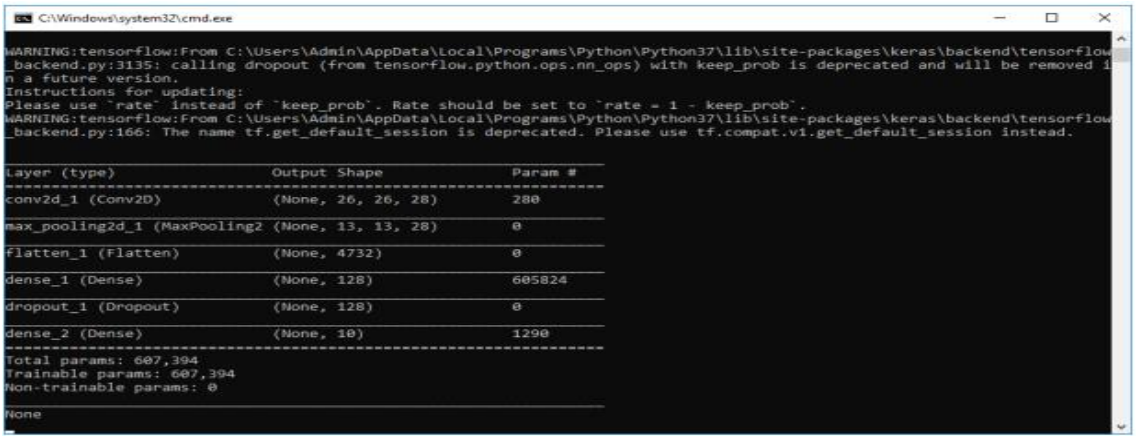

Fig.5 In above screen we can see Conv2d means convolution or CNN generate image features layer from different size as first layer generate with image size 26, 26 and second generated with 13 and 13 and goes on. Now click on 'Generate Text & Image Based Sentiment Detection Deep Learning Model' button to generate CNN for text and image based sentiment detection model.

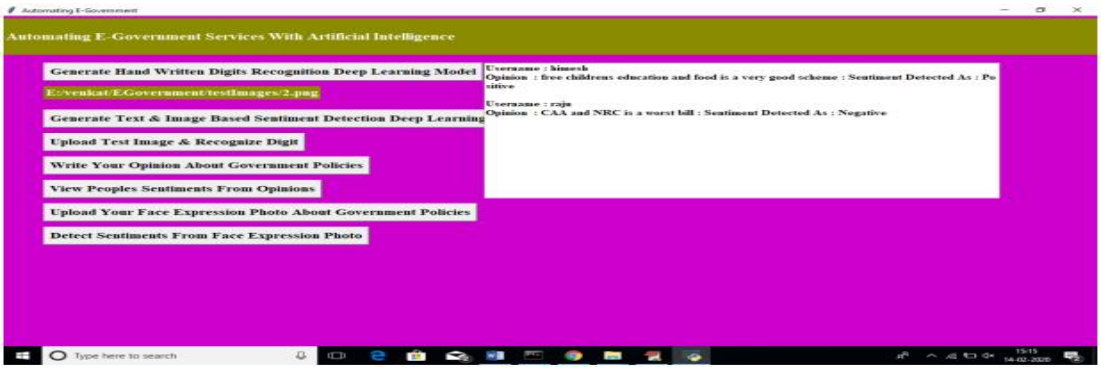

Fig.6 In above screen text area we can see opinions from all users and in first opinion we got sentiment detected as positive which means user is satisfy with that scheme and for second opinion we got sentiment as negative which means user not happy. Similarly user can upload their image with facial expression which describe whether user is happy or angry.

ISSN: 2057-5688

Fig.7 In above screen I am uploading one anger face image and then application ask to write username and referring scheme name. similarly any number of users can upload their images. Now click on 'Detect Sentiments From Face Expression Photo' button to get all images and its detected sentiments.

Fig.8 In above screen we can see all images with facial expression are identified with their sentiments. In dialog box also we can see sentiment result. Similarly you can enter any number of comments or facial images to detect their sentiments.

ISSN: 2057-5688

V. CONCLUSION

With the recent advances in AI and deep learning technologies, more government agencies are starting to use such technologies to improve their systems and services. However, a large set of challenges hinder the adoption of such technologies, including the lack of experts, computational resources, trust, and AI interpretability. In this paper, we introduced the definitions of artificial intelligence and e-government, briery discussed the current state of e-government indices around the world, and then proposed our solutions to advance the current state of e-government, considering the Gulf Countries as a case study. We proposed a framework for management of government information resources that help manage the e-government lifecycle end-to-end. Then, we proposed a set of deep learning techniques that can help facilitate and automate several e-government services. After that, we proposed a smart platform for AI development and implementation in e-government. The overarching goal of this paper is to introduce new frameworks and platform to integrate recent advances in AI techniques in the e-government systems and services to improve the overall trust, transparency, and efficiency of e-government.

REFERENCES

[1] K. He, X. Zhang, S. Ren, and J. Sun, "Deep residual learning for image recognition," in Proc. IEEE Conf. Compute. 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.

ISSN: 2057-5688

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.

[6] Y. LeCun, Y. Bengio, and G. Hinton, ‘‘Deep learning,’’ Nature, vol. 521, no. 7553, pp. 436–444, 2015.

[7] G. D. Abowd, A. K. Dey, P. J. Brown, N. Davies, M. Smith, and P. Steggles, ‘‘Towards a better understanding of context and context-awareness,’’ in Proc. Int. Symp. Handheld Ubiquitous Comput. Berlin, Germany: Springer, 1999, pp. 304–307.

[8] C. Dwork, ‘‘Differential privacy,’’ in Encyclopedia of Cryptography and Security, H. C. A. van Tilborg and S. Jajodia, Eds. Boston, MA, USA: Springer, 2011.

[9] L. Bottou, ‘‘Large-scale machine learning with stochastic gradient descent,’’ in Proc. COMPSTAT, 2010, pp. 177–186.

[10] A. Kankanhalli, Y. Charalabidis, and S. Mellouli, ‘‘IoT and AI for smart government: A research agenda,’’ Government Inf. Quart., vol. 36, no. 2, pp. 304–309, 2019.

[11] J. B. Lee and G. A. Porumbescu, ‘‘Engendering inclusive e-government use through citizen IT training programs,’’ Government Inf. Quart., vol. 36, no. 1, pp. 69–76, 2019.

[12] R. Santa, J. B. MacDonald, and M. Ferrer, ‘‘The role of trust in e-Government effectiveness, operational effectiveness and user satisfaction: Lessons from Saudi Arabia in e-G2B,’’ Government Inf. Quart., vol. 36, no. 1, pp. 39–50, 2019.

[13] J. D. Twizeyimana and A. Andersson, ‘‘The public value of E-Government–A literature review,’’ Government Inf. Quart., vol. 36, no. 2, pp. 167–178, 2019.

[14] M. Güler, E. Mukul, and G. Büyüközkan, ‘‘Analysis of e-government strategies with hesitant fuzzy linguistic multi-criteria decision making techniques,’’ in Proc. Int. Conf. Intell. Fuzzy Syst. Cham, Switzerland: Springer, 2019, pp. 1068–1075.

[15] P. G. Nixon, V. N. Koutrakou, and R. Rawal, eds. Understanding EGovernment in Europe: Issues and Challenges. Evanston, IL, USA: Routledge, 2010.

ISSN: 2057-5688

[16] D. A. D. Putra, K. A. Jasmi, B. Basiron, M. Huda, A. Maseleno, K. Shankar, and N. Aminudin, ‘‘Tactical steps for e-government development,’’ Int. J. Pure Appl. Math., vol. 119, no. 15, pp. 2251–2258, 2018.

[17] A. T.-K. Ho, ‘‘Reinventing local governments and the e-government initiative,’’ Public Admin. Rev., vol. 62, no. 4, pp. 434–444, 2002.

[18] Prasadu Peddi (2016), Comparative study on cloud optimized resource and prediction using machine learning algorithm, ISSN: 2455-6300, volume 1, issue 3, pp: 88-94.