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SMART E-GOVERNMENT: LEVERAGING AI AND MACHINE LEARNING FOR SERVICE AUTOMATION

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ABSTRACT

In order to increase participation in and confidence in our democratic system, e-government systems use the most latest information and communication technology to make it simpler and faster for individuals and businesses to get the support they need from the government. Supporting and streamlining governance for all stakeholders—the government, the general public, and businesses—is one of the primary goals of e-governance initiatives. ICTs could be used to strengthen the processes and activities of these three groups and to connect them to one another. Stated differently, e-governance leverages technological tools to promote and sustain efficient government. Any type of certificate, including those attesting to a person's birth, income, death, or membership in a certain group, is accepted by the numerous websites that make up this project.The citizen submits a request for processing, and the relevant authority reviews it. A user may receive their certificate once they have received sufficient information. This could shorten the time spent standing in line to obtain the necessary official certifications. On the official website, government initiatives ought to be made public as well. The government benefits because it could be able to deliver better services faster, boosting the government's efficacy and efficiency. Both transaction costs and the accessibility of government services may be enhanced.

Keywords: Artificial Intelligence, Machine Learning, Smart, E-Government, and Service Automation

1 INTRODUCTION

While artificial intelligence (AI) has been around for a few decades in many theoretical forms and sophisticated systems, its practical use has only recently been made possible by significant advancements in computing power and enormous data. have enabled AI to generate superior results in an increasing number of sectors. For example, artificial intelligence (AI) has advanced significantly in several domains, such as computer vision, natural language processing, medical applications, reinforcement learning, and more. Artificial intelligence (AI) is the capacity of a machine to emulate human intelligence while improving its own performance. Artificial Intelligence (AI) is the intelligent behavior of an autonomous machine that characterizes the machine's mind rather than its body. It is not only

robotics. AI-powered devices are capable of driving automobiles, playing video games, and doing a wide range of difficult jobs.Artificial Intelligence (AI) intersects with several different subjects, such as Machine Learning, Deep Learning, Natural Language Processing, Context Awareness, and Data Security and Privacy. Figure 1 illustrates the links and intersections between the field of AI and adjacent subjects. Machine learning (ML) is the ability of an algorithm to learn from the past to create intelligent behavior and make the correct decisions in a range of previously unexplored situations. Machine learning (ML) algorithms are made possible by training a computational model, which is the act of exposing an algorithm to a large dataset (such as the demographics of residents) in order to predict future behavior (such as employment rates). The method of learning from previous datasets is known as supervised learning.Unlike standard ML approaches, Deep Learning is a branch of machine learning that emerged to solve the inadequacies of prior ML algorithms. Deep learning is a mapping function that uses an optimization method like stochastic gradient descent to minimize a loss function and translate raw input data, like a medical imaging, into the desired output, like a diagnosis. (SGD).

Deep learning algorithms—inspired by the neural networks in the human brain—are constructed with a large number of hierarchical artificial neural networks in order to map the raw input data (inserted at the input layer) to the desired output (produced at the output layer) through a large number of layers (known as hidden layers).The buried layers perform the actual mapping process, which consists of a series of simple but nonlinear mathematical operations. (That is, a nonlinear process after a dot product).

2. RELEATEDWORK

[1] **K. He, X. Zhang, S. Ren, and J. Sun**This study conducts a "Image identification using deep residual learning" It is more difficult to train neural networks that have more depth. We offer a residual learning strategy to make it easier to train nets that are much deeper than those that have previously been employed.Several distinct visual recognition tests heavily emphasise the representation depth when it comes to recognising images. On the COCO object identification dataset, we see a relative improvement of 28%, and this is solely due to the depth of our representations. We used deep residual nets in our entries, which helped us win first place in the ILSVRC and COCO 2015 competitions' ImageNet detection, Contest localization, COCO detection, and COCO segmentation tasks1.

[2] **S.-H. Wang, H. Chen, X.-X. Hou, Y-D. Zhang,** In this work," Voxel-wise detection of cerebral micro haemorrhag" susceptibility weighted imaging was used to scan subjects and identify brain voxels damaged by cerebral microbleed. (CMB). Because of the disparity in data quality between CMB voxels and other voxels, we used under sampling to solve the accuracy paradox. With 1 input, 4 sparse auto encoder, 1 softmax, and 1 output layer, we built a 7-layer DNN. The technique was 95.13 percent sensitive, 93.3 percent specific, and 94.2 percent accurate, according to our simulations. This technique outperforms three other cutting-edge techniques in terms of quality of findings..

[3] **S.Venugopalan, R.Mooney "**Applying deep recurrent neural networks to the task of video-to-language translation"For a long time, artificial intelligence has been attempting to resolve the grounding problem for visual symbols. Recent developments in machine learning for anchoring human language in static images imply that we are moving closer to achieving this goal. For direct video-to-sentence translation in this study, we

recommend using a single deep network with both recurrent and convolutional structure. There aren't many datasets of described videos, and the vast majority of algorithms have only been tried out on "play" domains with small vocabulary sets. Our method can transfer information from 1.2M+ photographs with class labels or 100,000+ images with captions to construct sentence-level descriptions of open-domain films with large vocabularies.We compare our approach to existing approaches using metrics like language production, subject, verb, or object prediction accuracy, and human assessment.

[4] **I. Antonoglou, V. Panneershelvam, M. Lanctot, S. Dieleman, D. Grewe, J. Nham, N. Kalchbrenner,** This study conducts a "I. Antonoglou, V. Panneershelvam, M. Lanctot, S. Dieleman, D. Grewe, J. Nham, N. Kalchbrenner" Due of its vast search space and the complexity of analysing board situations and movements, Go has long been considered the most difficult of the traditional games for artificial intelligence.Here, we introduce a novel method for playing computer Go that employs "value networks" to assess the state of the board and "policy networks" to choose moves. These deep neural networks are trained using a unique method that combines reinforcement learning from self-playing games and supervised learning from games played by human experts.The neural networks play Go at the same level as cutting-edge Monte Carlo tree search systems, which simulate thousands of random games of self-play without using any lookahead search.With the use of this search method, our programme AlphaGo defeated the human European Go champion by a score of 5 games to 0 and had a winning percentage of 99.8% versus other Go programmes.

3 IMPLEMENTATION STUDY

1. Add Product Information
I trained product identification models using sample product images that I used to develop the project.
2. Train Model
This module's screen train model was created with perfect accuracy and can now display the finished product to a webcam.
Add/Remove Item from Cart
To enable the application to recognise the product image and display it in the text area. If the same product is displayed again, the application will delete the image from the text area.

4 PROPOSEDWORK

In this study, the author presents a notion for using Artificial Intelligence (AI) tools, such as the Deep Learning Convolution Neural Networks algorithm, to automate government functions. (CNN). People can read news and notices about new government programmes on the internet, read about them, and then post reviews of them. These reviews can help the government make better judgements. It is necessary to have software that functions similarly to human brains in order to automatically detect whether the public supports positive or negative policy proposals.

The author suggests developing a CNN model that can function like a human brain in order to develop such automatic opinion detection. Any service can produce this CNN model, and we can programme it to function as automated decision-making without involving any human

beings. In order to illustrate this technique, the author has already described the idea of using multiple models, one of which can detect or recognise human handwritten digits and another which can identify sentiment from text phrases that can be provided by a human about government programmes. We included yet another model in our extension model that can recognise emotion in a person's face. Persons' facial expressions can convey feelings more effectively than words or sentences. Consequently, our extension work may infer emotions from photos of a person's face.

5 METHODOLOGIES AND ALOGRITHAM

E-government services have recently been used by many nations in a variety of departments and numerous independent applications. Even while many studies have been done to improve e-government services, very few of them speak to the use of contemporary developments in AI and deep learning in the automation of e-government services. Therefore, there is still a pressing need to address egovernment needs and issues using cutting-edge AI approaches and algorithms.
Implementing e-government applications, however, still faces a number of difficulties, such as the following:
Trust: The degree to which users place their confidence in online services depends significantly on a number of variables, such as the degree to which users place their faith in the government as a whole, the calibre of the online services, and the users' own personal beliefs (for example, many users still prefer to submit paper applications over using web services).
Lack of expertise: Putting in place high-quality online services necessitates the formation of the ideal team of experts that covers all relevant practise areas, from web development to security and privacy.
Accessibility: Several developing nations still have serious problems in gaining access to the internet and its services.
Modern security measures are necessary to protect both the privacy of citizens using e-government applications.

DEEP LEARNING ALGORITHM:

Convolution Neural Networks (CNN): In this project, the idea of automating government functions using Artificial Intelligence technology, such as the Deep Learning Convolution Neural Networks algorithm, is described.
(CNN). People can read news and notices about new government programmes on the internet, read about them, and then post reviews of them. These reviews can help the government make better judgements. It is necessary to have software that functions similarly to human brains in order to automatically detect whether the public supports positive or negative policy proposals.

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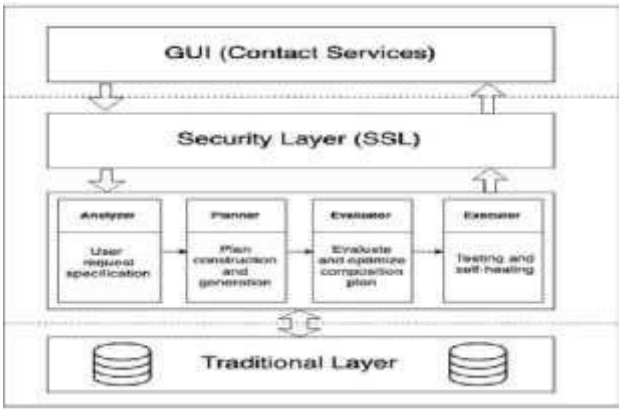

Fig.1:propose Architecture

6 RESULTS AND DISCUSSION

All facial expression images you can upload from "expression_images_to_upload" folder. To run this project double click on 'run.bat' file to get below screen.

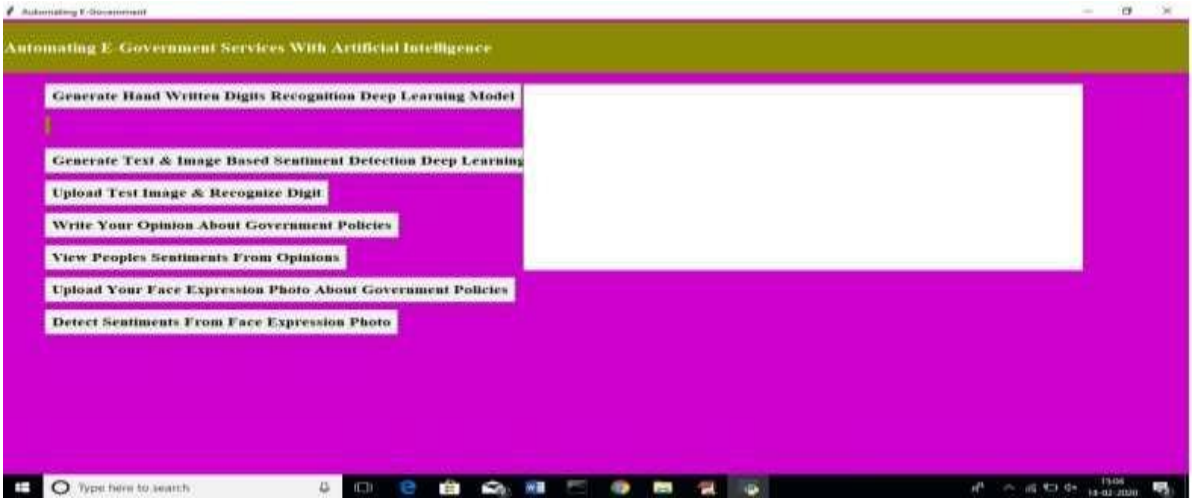

Fig-6.1 Recognize handwritten digits in a database. CNN digits recognition model can be generated using the Deep Learning model button.

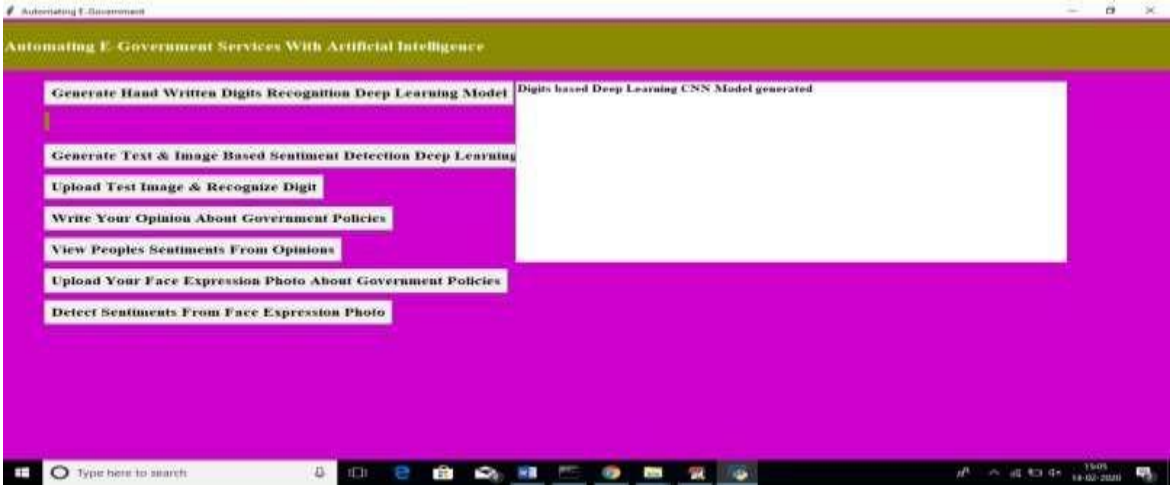

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Fig-6.2 We can see model-generated numbers, and in the CNN layer details, a black console is visible.

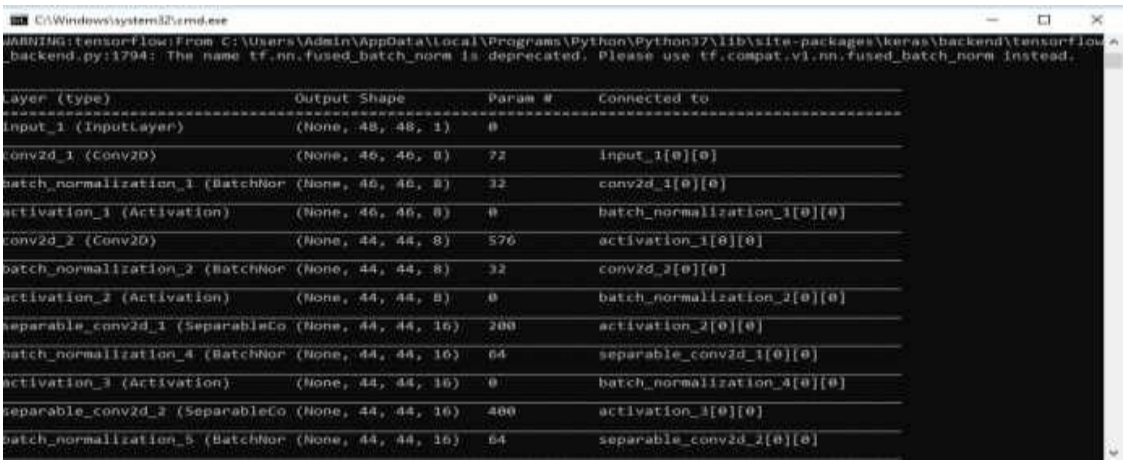

Fig-6.5 To upload digit photographs and obtain the name of that digit, click the "Upload Test Image & Recognize Digit" button. The testImages folder contains all of the digit images.

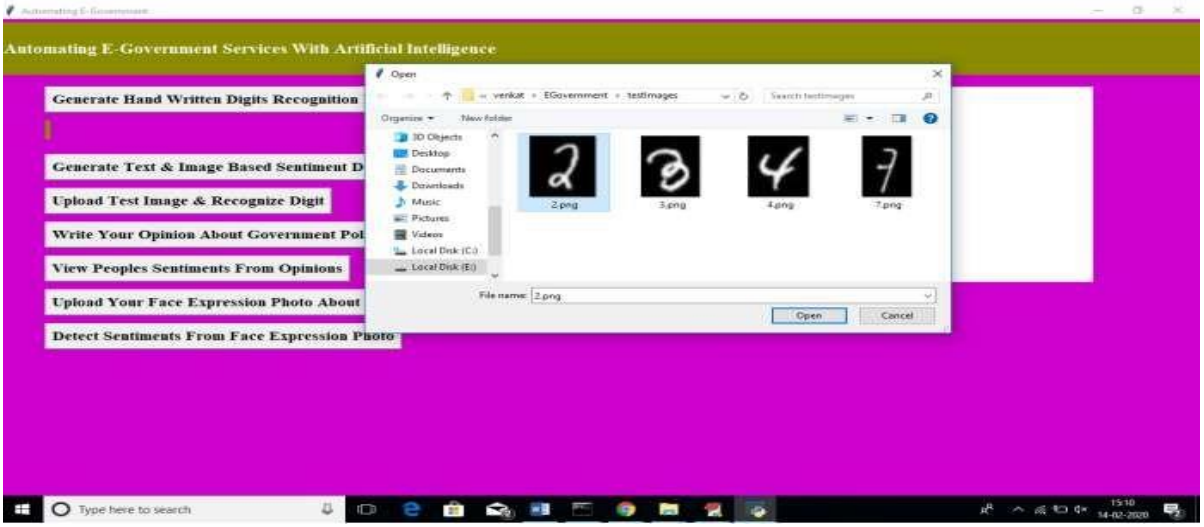

Fig-6.6 I am uploading an image with the number 2 in it in the screen up above, and the results of the detection are below.

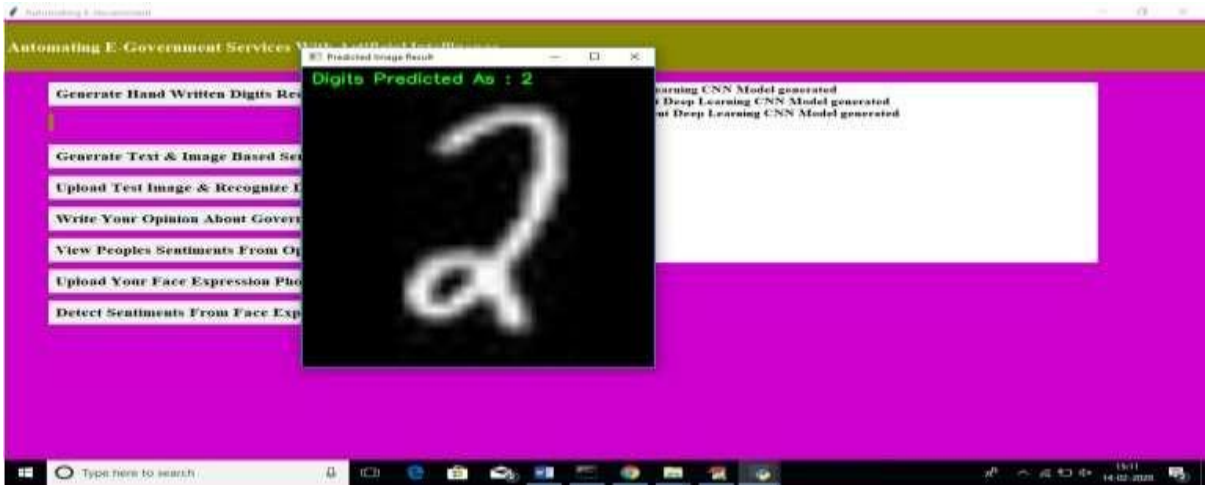

Fig-6.7 Digits are visible. Assumed to be: 2. To comment on government policy, click the tab that says "Write Your Opinion About Government Policies."

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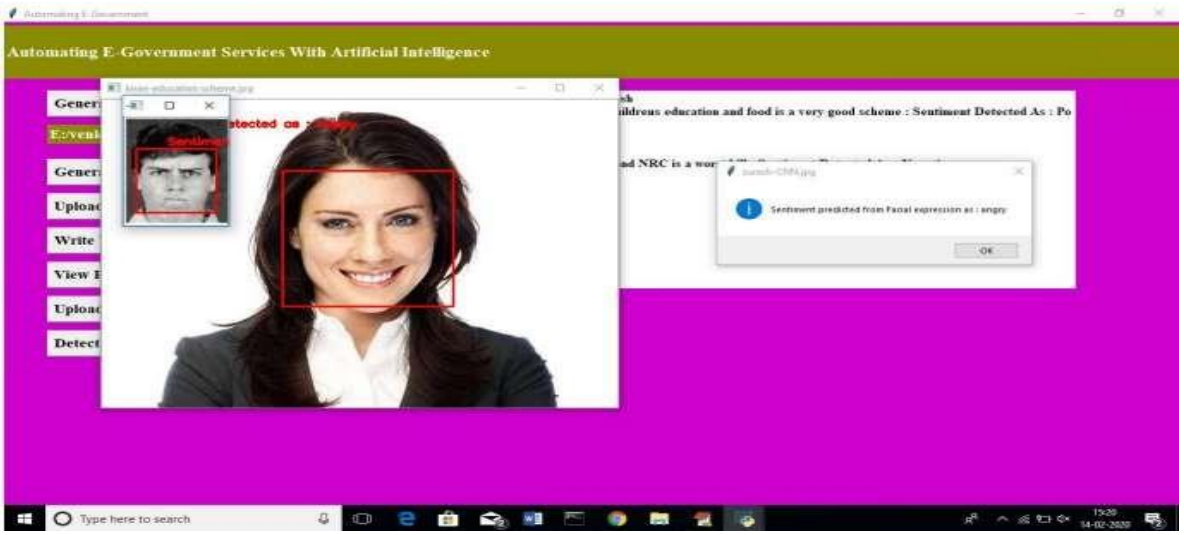

Fig-6.12 As seen in the screen above, each facial expression is labelled with a feeling. We may also see the sentiment outcome in the dialogue box.Similar to that, we can insert as many comments or facial photographs as we like to analyse their emotions.

7. CONCLUSION AND FUTURE WORK

Recent advances in AI and deep learning are encouraging more government organizations to use these technologies to improve their systems and services. However, there are other obstacles that prevent the full implementation of these technologies, including trust, computational capacity, a shortage of experts, and the interpretability of AI. Using the Gulf Countries as a case study, we defined artificial intelligence and e-government, discussed worldwide e-government indices in brief, and then provided our recommendations for enhancing the current state of e-government. We published a paradigm for information asset management in government that supports e-government lifecycle management. Next, we proposed a set of deep learning techniques that could help with and automate several e-government tasks. Next, we proposed an ingenious platform for AI development and use in e-government. This article aims to integrate the latest advances in AI techniques into systems and services by proposing new frameworks and platforms. The ultimate goal is to improve the overall trust, transparency, and efficiency of e-government.

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