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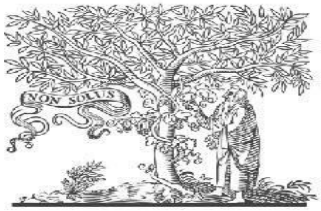

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Title AUTOMATING E GOVERNANCE SERVICES USING ARTIFICIAL INTELLIGENCE

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AUTOMATING E GOVERNANCE SERVICES USING ARTIFICIAL INTELLIGENCE

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Abstract: In this article, we introduce a notion for predicting insurance policy costs and consumer sentiment towards policies through the application of machine learning and artificial intelligence. Artificial intelligence will act in a similar manner to the human brain (as our brain help us in making decision as word hard if marks is less else take easy). In a rising number of disciplines, artificial intelligence (AI) has recently improved state-of-the-art outcomes. Yet, there are still a number of obstacles that prevent its use in e-government applications, both for enhancing e-government systems and citizen interactions. In this article, we discuss the problems with e-government systems and suggest a paradigm for automating and facilitating e-government functions. To be more precise, we first present a framework for the administration of information resources for e-government. The second step is to create a collection of deep learning models with the goal of automating various e-government services. Finally, we suggest an intelligent e-government platform architecture that enables the creation and execution of AI e-government applications. Our main objective is to enhance the current state of e-government services using reliable AI approaches in order to decrease processing times, lower costs, and increase public happiness.

Keywords: Artificial intelligence, e-governance, deep learning.

1. Introduction

Artificial intelligence (AI) has been around for a while in a variety of theoretical forms and complex systems, but it has only recently been made possible by breakthroughs in computing power and massive data to achieve spectacular outcomes in an expanding range of disciplines. For instance, AI has made significant progress in a number of fields, including computer vision [1], medical applications [2], natural language processing [3], reinforcement learning [4], and others. The ability of a computer to mimic intelligent human behaviour and enhance its own performance is known as artificial intelligence (AI). AI, which is not just robotics but rather the intelligent behaviour of an autonomous machine that characterises the machine's mind rather than its body, is capable of playing video games, driving cars, and doing a variety of complex tasks. Natural Language Processing [3], Context Awareness [7], Data Security and Privacy [8], Deep Learning [5], Machine Learning [6], and Natural Language Processing [5] are some of the other fields that AI intersects with.

Although deep learning has improved state-of-the-art outcomes in a number of fields, it is nevertheless obvious that e-government applications encounter a number of difficulties when implementing deep learning [10]. First, it is become harder to

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locate deep learning experts that can create trustworthy and efficient AI applications, especially in third-world nations, given the recent and rapid advancements in this field. Second, a whole set of development obstacles have been added by the lifecycle of AI projects, particularly deep learning. Specifically, deep learning development focuses on maximising a specific metric based on a vast set of factors, which is done in an ad hoc search manner, as opposed to traditional software development, which focuses on meeting a list of necessary functional and non-functional requirements. Third, robust policies and measures on data security and protection are necessary for integrating AI and deep learning applications in e-government services. However, there are still issues that prevent the development of specific data security and privacy standards, such as issues with citizen-government confidence, transparency, and other technological challenges associated with creating and implementing secure systems.

2. Literature survey

Reference	Methodology	Advantage/Disadvantage
Kaiming He [1]	residual learning framework	residual networks are easier to optimize, and can gain accuracy from considerably increased depth
Yu-Dong Zhang [2]	deep neural network	Our simulation showed this method achieved a sensitivity of 95.13%, a specificity of 93.33%, and an accuracy of 94.23%.
Subhashini Venugopalan [3]	deep neural network	our method is able to create sentence descriptions of open-domain videos with large vocabularies
G. D. Abowd [7]	context-aware applications	-
L. Bottou [9]	stochastic gradient descent	asymptotically efficient

Table.1: Comparative study

The discussion of comparative study is briefly given below:

Kaiming He [1] said that, deeper neural networks are more difficult to train. We present a residual learning framework to ease the training of networks that are substantially deeper than those used previously. We explicitly reformulate the layers as learning residual functions with reference to the layer inputs, instead of learning unreferenced functions. We provide comprehensive empirical evidence showing that these residual networks are easier to optimize, and can gain accuracy from considerably increased depth. On the ImageNet dataset we evaluate residual nets with a depth of up to 152 layers - 8× deeper than VGG nets but still having lower complexity.

Yu-Dong Zhang [2] discussed, In order to detect the cerebral microbleed (CMB) voxels within brain, we used susceptibility weighted imaging to scan the subjects. Then, we used undersampling to solve the accuracy paradox caused from the imbalanced data between CMB voxels and non-CMB voxels. we developed a seven-layer deep neural network (DNN), which includes one input layer, four sparse autoencoder layers, one softmax layer, and

one output layer. Our simulation showed this method achieved a sensitivity of 95.13%, a specificity of 93.33%, and an accuracy of 94.23%. The result is better than three state-of-the-art approaches.

Subhashini Venugopalan [3] said that, solving the visual symbol grounding problem has long been a goal of artificial intelligence. The field appears to be advancing closer to this goal with recent breakthroughs in deep learning for natural language grounding in static images. In this paper, we propose to translate videos directly to sentences using a unified deep neural network with both convolutional and recurrent structure. Described video datasets are scarce, and most existing methods have been applied to toy domains with a small vocabulary of possible words. By transferring knowledge from 1.2M+ images with category labels and 100,000+ images with captions, our method is able to create sentence descriptions of open-domain videos with large vocabularies. We compare our approach with recent work using language generation metrics, subject, verb, and object prediction accuracy, and a human evaluation.

G. D. Abowd [7] discussed, when humans talk with humans, they are able to use implicit situational information, or context, to increase the conversational bandwidth. Unfortunately, this ability to convey ideas does not transfer well to humans interacting with computers. In traditional interactive computing, users have an impoverished mechanism for providing input to computers. By improving the computer's access to context, we increase the richness of communication in human-computer interaction and make it possible to produce more useful computational services. The use of context is increasingly important in the fields of handheld and ubiquitous computing, where the user?s context is changing rapidly. In this panel, we want to discuss some of the research challenges in understanding context and in developing context-aware applications.

L. Bottou [9] said that, during the last decade, the data sizes have grown faster than the speed of processors. In this context, the capabilities of statistical machine learning methods is limited by the computing time rather than the sample size. A more precise analysis uncovers qualitatively different tradeoffs for the case of small-scale and large-scale learning problems. The large-scale case involves the computational complexity of the underlying optimization algorithm in non-trivial ways. Unlikely optimization algorithms such as stochastic gradient descent show amazing performance for large-scale problems. In particular, second order stochastic gradient and averaged stochastic gradient are asymptotically efficient after a single pass on the training set.

3. Proposed modularity

In this paper we are 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 we are suggesting to build CNN model which can work like human brains. This

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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 we are 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.

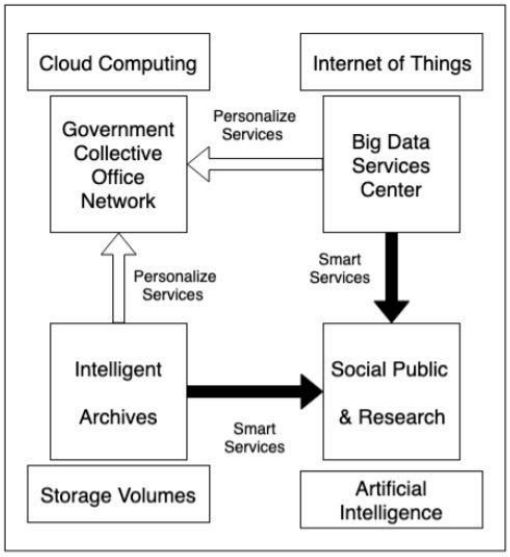

Fig.1: System architecture

Modules:

- Generate hand Written Digits Recognition Deep Learning Model
- Generate Text & Image Based Sentiment Detection Deep Learning
- Upload Test Image & Recognize Digit
- Write Your Opinion About Government Policies
- View People Sentiments From Opinions
- Upload Your Face Expression Photo About Government Policies
- Detect Sentiments From Face Expression Photo

Modules description:

This projects consists of following model

Generate Hand Written Digits Recognition Deep Learning Model: using this model we are building CNN based hand written model which take digit image as input and then predict the name of digit. CNN model can be generated by taking two types of images called train (train images contain all possible shapes of digits human can write in all possible ways) and test (Using test images train model will be tested whether its giving better prediction accuracy). Using all train images CNN will build the training model. While building model we will extract features from train images and then build a model. While testing also we will extract features from test imageand then apply train model on that test image to classify it.

Generate Text & Image Based Sentiment Detection Deep Learning Model: using this module we will generate text and image based sentiment detection model. All possible positive and negative words will be used to generate text based sentiment model. All different types of facial expression images will be used to generate image based sentiment model. Whenever we input text or image then train model will be applied on that input to predict its sentiments.

Upload Test Image & Recognize Digit: By using this module we will upload text image and apply train model to recognize digit.

Write Your Opinion About Government Policies: using this module we will accept user's opinion and then save that opinion

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inside application to detect sentiment from opinion.

View Peoples Sentiments From Opinions: using this module user can see all users opinion and their sentiments detected through CNN model.

Upload Your Face Expression Photo About Government Policies: using this module user will upload his image with facial expression which indicates whether user is satisfy with this scheme or not.

Detect Sentiments From Face Expression Photo: using this module different users can see the facial expression image and detected sentiment which is uploaded by past users.

The composition plan of this layer consists of four phases:

• **Analysis:** this phase stars from the abstract specification to a citizen request and it aims to determine the required service in a meaningful way.

• **Planning:** where the discovery and configuration of the plan are created, and this process is done by the help of intelligent agents and AI techniques.

• Evaluation and optimization: which is responsible to find the best plan in terms of user specifications.

• **Execution:** since some problems of inconsistency may occur at run time, so reassessment and re-planning are necessary to ensure the proper execution of the services. This will help to create open e-government that will produce a huge amount of organized data and information that help the public sector to play a vital role in supplementing citizen services. In the recent years, governments have established different sets of frameworks and regulations that enabled open citizen services, new e-government markets, created smart products, and enhanced citizen-government transparency and trust. Different government agencies must provide detailed reports with keeping in mind the differences between central oversight and initiatives. Other agencies are appointed based on their governmental background, policies, and connection. Such agencies' leaders often do not serve long enough to witness the change since they tend to focus more on reforming policies rather than reforming the process. This approach has been implemented and articulated around the world by different governments to facilitate the governing approach which will increase the public trust and establish a more reliable and transparent system that promotes democracy and provides the more efficient government.

4. Results

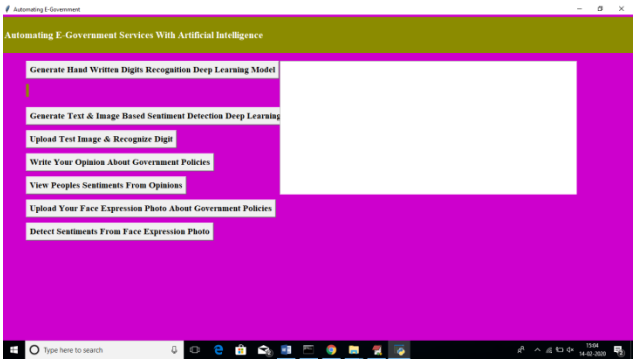

Fig.2: Home page

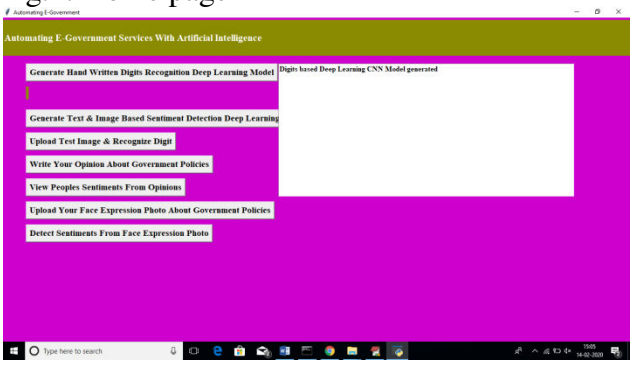

Fig.3: Generate Hand Written Digits Recognition Deep Learning Model

Here generate CNN digits recognition model

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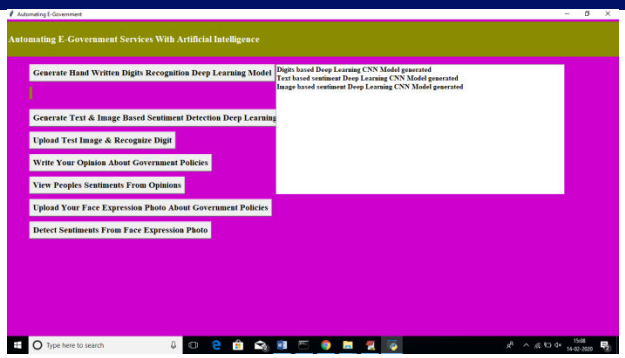

Fig.4: Generate Text & Image Based Sentiment Detection Deep Learning Model

Here we can see text and image based CNN model generated

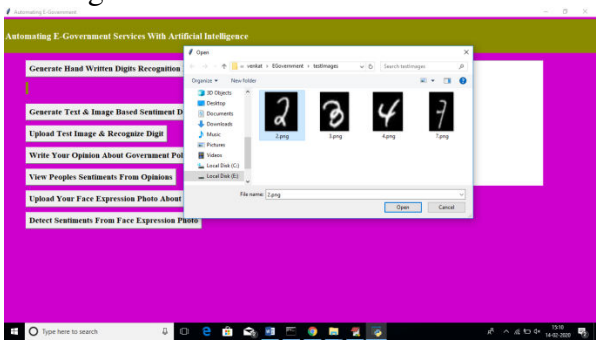

Fig.5: Upload Test Image & Recognize Digit

In above screen I am uploading image which contain digit 2 and below is the output of detection

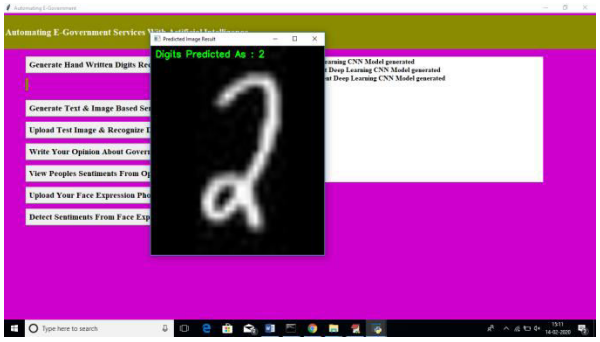

Fig.6: Detection result

In above screen we can see Digits Predicted as: 2

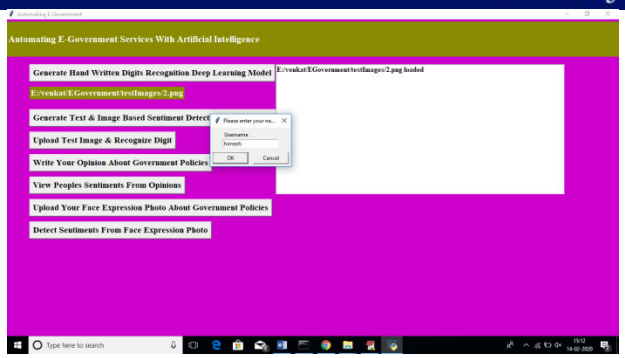

Fig.7: Write Your Opinion About Government Policies

Here we will write some comments on government policy

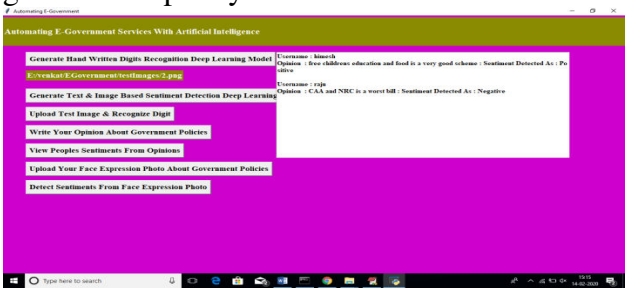

Fig.8: View Peoples Sentiments From Opinions

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

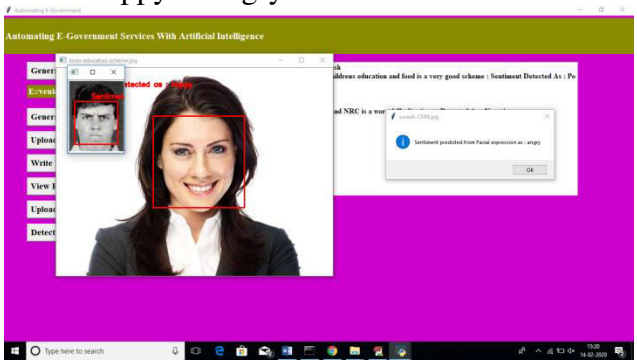

Fig.9: Detect Sentiments From Face Expression Photo

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Here we are get all images and its detected sentiments

5. 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, briefly 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 over.

Future Enhancement is being planned to further analyze and enhance the protocol on reforming policies rather than reforming the process. This approach has been implemented and articulated around the world by different governments to facilitate the governing approach which will increase the public trust and establish a more reliable and transparent system that promotes democracy and provides the more efficient government.

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