**Project Design Phase-I**

**Proposed Solution Template**

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| Date | 27 September 2022 |
| Team ID | PNT2022TMID18569 |
| Project Name | A Gesture-based tool for sterile browsing of radiology images |
| Maximum Marks | 2 Marks |

**Proposed Solution :**

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | * It is easy for the human to perform task accurately by practicing it repeatedly and memorizing it for the next time. Human brain can process and analyse images easily. Also, recognize the different element present in the images. * The gesture based **recognition** is the capability of computer applications to **recognize** the human **hand signs.** * It is a hard task for the **machine** because **hand signs** are not perfect and can be made with many different shapes and sizes. * The gesture based tool is a way to tackle this problem which uses the image and recognizes what sign it is. * In this competition, the goal is to correctly identify signs from a dataset of tens of thousands of hand images and experiment with different algorithms to learn what works well and how techniques compare. |
|  | Idea / Solution description | * The algorithm used is Convolution Neural Network(CNN). This will prepare the trained model which will be used to classify the images with different set of same images. * MNIST is a dataset which is widely used for hand sings. The dataset consist of 60,000 training images and 10,000 test images. * The artificial neural neworks can all most mimic the human brain and are a key ingredient in image processing field. |
|  | Novelty / Uniqueness | * This project introduces an operative strategy for dealing with novelty in the hand sign visual recognition domain. A perfect transcription agent would be able to distinguish known and unknown characters in a picture, as well as determine any aesthetic variations that may occur inside or between texts. The existence of novelty has shown to be a major stumbling block for even the most robust machine learning-based algorithms for these activities. * Novelty in handwritten papers might include, among other things, a change in the writer, character properties, writing attributes, or overall document appearance. Instead of examining each element separately, we believe that an integrated agent capable of processing known characters and novelties concurrently is a superior technique. The gesture based recognition problem can be seen as a subtask of the optical character recognition (OCR) problem. |
|  | Social Impact / Customer Satisfaction | * There are many benefits associated with the gesture based recognition. The blind as well as the physically challenged persons as a lot of benefit towards this system. As a result, this system full fills customers' expectations, as it is a novel method for recognizing gestures which compares with different images, ensuring high accuracy for the model and meeting all customer expectations. Users will save a lot of time and effort if the system provides various synonyms for the words recognized when it is added. As the system is being used in socially crowded places such as banks ,offices which saves time. As it is designed to solve real-world problems, it should be highly reliable and trustworthy in every way, and users throughout the world should be able to use it effectively. |
|  | Business Model (Revenue Model) | * The applications where these gesture based recognition can be used in Banking sector where it can be used to maintain the security pin numbers, it can be also used for blind peoples by using sound output. * Some of the research areas include signature verification, bank check processing, postal address interpretation from envelopes etc. |
|  | Scalability of the Solution | * One of the approaches to make the gesture based recognition system scalable is to make use of cloud-native methods. For example, one of the cloud solutions for making AI scalable is IBM Cloud. IBM Cloud Build helps run and manage AI models, optimize decisions at scale across any cloud. The advantage of using cloud to make solutions scalable is that we can deploy our AI application on the specific cloud environment that best supports our business needs. We can take advantage of built-in security capabilities and AI model monitoring. We can Automate AI lifecycles with Model Ops pipelines, deploy and run models through one-click integration and also prepare and build models visually and programmatically. Looking at these advantages, we can drive better business outcomes by optimizing our decisions and also make our solution scalable using cloud |