**Final Year Project Proposal**

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**Suggested Supervisor**:

Faculty Member’s Name: Muhammad Amin Signature: \_\_\_\_\_\_\_\_\_

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**Project Details**

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| **Project Title** | ***Image and Video Caption Generator*** | | |
| **Project Area of Specialization** | Deep learning, Computer Vision, Natural language processing | | |
| **Project Start Date** | 2021-9-17 | **Project End Date** | 2022-09-17 |
| **Project Summary (less than 2500 characters)** | Our project automatically Generate the Caption of the content observed on the image and video in the form of a Natural language process. Image and video Caption Generator has very Applications for example enriching and created new image Datasets, human-reboot interaction, enhancing the power of google search engine and enhance the functionality of the system similar to google photos. | | |
| **Project Objectives (less than 2500 characters)** | 1. This model will be made in order to help visually impaired people to have knowledge of pictures so it is necessary that the model generate captions that is close to human language, the captions should be grammatically accurate and this accuracy will be measured through BLEU score.  2.The model will be made in order to help the separation of content from multiple videos.  3.The model will be made in order to enhance the power google search engine inside the content of the image and video.  4: The model will be made in order to increase human-reboot interaction. | | |
| **Project Implementation Method (less than**  **2500 characters)** | **Deep Learning:**  CNN Model, LSTM  **Object/Detection:**  Computer Vision  **Language Transformation:**  NLP  **Rest API:**  Python, Flask/Django, Azure | | |
| **Benefits of the Project (less than 2500 characters)** | The application of Image and video Caption Generator has many applications like enhancing the power of google search engine, and helping impaired people, human-robot interaction, enriching and created new images dataset, enhancing the functionality of system similar to google photos. | | |
| **Technical Details of Final Deliverable (less than 2500 characters)** | Image and Video caption Generator recognizes image Frame by frame. It will have two components: Encoder and Decoder. Encoder utilizes Convolutional Neural Network (CNN), which extracts objects and features from image or video frame. Decoder utilizes a neural to generate a natural sentence based on available information. CNN will be used to recognize image. Recurrent Neural Network (RNN) will be used in speech recognition, video activity recognition. Long Short-Term Memory (LSTM) networks will be used for learning order dependence in sequence prediction problems. Video caption generator will also use these models to generate caption. | | |
| **Final Deliverable of the Project** | Developing a Web application Where user can upload their images and Our System will generate the image caption. | | |
| **Type of Industry** | Artificial intelligence, Data Science | | |
| **Technologies** | Python, OpenCV. TensorFlow, GitHub, Keras, Django, VM, GPU | | |
| **Sustainable Development Goals** | Developing a system that will help the impaired people and blind people and also the power existing system like google search engine and enhance the human-robot interaction. | | |

**Project Key Milestones**

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| **Elapsed time in (days or weeks or month or quarter) since start of the project** | **Milestone** | **Deliverable** |
| FYP-1 | 1st 4 Months | Model Trained on Image Caption |
| FYP-2 | 2nd 4 Months | Deployed model on both image and Video caption |

**Project Equipment Details**

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| --- | --- | --- | --- | --- |
| **Item Name** | **Type** | **No. of Units** | **Per Unit Cost (in Rs)** | **Total (in Rs)** |
| Azure Credits | Web service | 2 | 500 | 1000 |
|  |  |  |  |  |
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|  |  |  | **Total in (Rs)** | **1000** |