North East Univarsity Bangladesh
Project Proposal: Face Mask Detection System Using Deep Learning
Course title:Deep Learning

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1. Project Overview

The project aims to develop a **Face Mask Detection System** using **Convolutional Neural Networks (CNN)**, a type of deep learning model that is highly effective for image classification tasks. This system will be able to detect whether a person is wearing a face mask or not.

2. Objective

- To build an automated system that identifies if individuals in images are wearing face masks.
- This can be helpful in settings like offices, hospitals, and public places, where safety protocols are crucial.

4. Dataset

We will use the **Face Mask Detection Dataset** available on **Kaggle**. The dataset consists of images of people with and without face masks, which will be used for training the model.

- **Dataset Link**: Kaggle Datase

- **4. Technology Stack**
- **Programming Language**: Python

- **Libraries Used**:

    - **TensorFlow / Keras** for deep learning model implementation

    - **OpenCV** for image processing

    - **NumPy**, **Pandas** for data handling

    - **Matplotlib** for data visualization

- **Deep Learning Model**: Convolutional Neural Network (CNN)

Model

The Face Mask Detection Model is built using a Convolutional Neural Network (CNN), trained on a labeled dataset of face mask images. The model is evaluated using accuracy and other metrics on a test set to ensure its effectiveness. After training, the model is deployed in a Flask web application, where users can upload images, and the model predicts whether a face mask is detected. The entire process includes data preprocessing, model training, evaluation, and real-time implementation via the web app.

Conclusion

The **Face Mask Detection System** using **Convolutional Neural Networks (CNN)** is a useful project that helps keep people safe by automatically checking if someone is wearing a face mask. This

system can be used in places like offices, hospitals, or public transport to make sure everyone follows safety rules.

Using simple and free tools, we can build a model that can quickly detect face masks in photos. Once the model is ready, it can be shared through a **Flask** web app, allowing users to upload pictures and get results in seconds.