A thesis proposal for "partial fulfillment of M.Sc(Engg) degree" at
Department of Information and Communication Technology ,
Islamic University, Kushtia-7003, Bangladesh.

Thesis Title:

"Relative comparison between different machine learning algorithms for criminal offense detection and immediate response on the event using intelligent IoT devices "

Abstract:

Nowadays criminal occurrence is becoming a big problem in our society. By installing CCTV cameras we can only record any criminal offense but cannot take any action on those circumstances immediately. By applying computer vision algorithms on real time video we can detect many criminal activities and send that data immediately to the law enforcement authority for taking further actions. My main goal is to build a system that can detect criminal offenses and alert the authorities in real time . This will help in reducing criminal activities in our society .

Introduction:

I will build a model to extract features from real time videos using well known machine learning algorithms. After that I'll analyze key features on image frames taken from videos to build a neural network for criminal occurrence detection. Then I'll merge those two things together to detect real time criminal occurrence and will show the detected frame when required . Finally will do relative comparison between different machine learning algorithms to observe which one performs better to accomplish our purpose efficiently.

Scope of the Proposed Thesis:

This thesis has a huge scope to get implemented in real life with surveillance cameras . where our solution will enhance the productivity of law enforcement authority by providing information about criminal occurrences captured by surveillance cameras. Besides this will be a great tool for both the present and the next generation law enforcement authority. This will also motivate people to implement it for private security purposes .

Objectives:

1. To reduce crime rate by detecting crime occurrence and taking action on it immediately
2. To reduce crime investigation time by providing related events that occurred in front of different surveillance cameras .

Required Tools:

1. Camera module (i.e USB Camera , CSI Camera)
2. Computing unit (i.e Jetson Tx2 , Raspberry Pi 4B 8GB, General purpose computer)
3. Machine learning algorithms .