CSYE 7374: SPECIAL TOPICS IN COMPUTER SYSTEMS ENGINEERING

COGNITIVE COMPUTING

PROJECT PROPOSAL

GUN AND KNIFE OBJECT DETECTION IN AN IMAGE

PRESENTED BY,

Pramod Nagare

Dharani Thirumalaisamy

Team Member Details:

1. Pramod Nagare
   Email-ID: Nagare.p@huky.neu.edu

2. Dharani Thirumalaisamy
   Email-ID: thirumalaisamy.d@husky.neu.edu

Project Topic:

Gun and Knife Object Detection in an Image

Overview:

As we know we humans are very good at detecting and identifying different objects in an image. Our visual system is very fast and accurate with complex tasks like detecting objects and identifying obstacles, which leads us to take several actions like run, walk, talk, jump, etc. But when it comes to perform the same using Artificial Intelligence technique it becomes very tough. The perform of autonomous driving cars, robotics, tracking object, face detections and many more applications, depends on the object detection algorithm it is based on. As object detection serves the base for such innovative and vast range of applications, we as a students of cognitive computing class would like to work on object detection in an image.

Goal:

Given an Image our application will detect the presence of the gun and knife.

Dataset:

We have readily available dataset for knife images.

http://kt.agh.edu.pl/matiolanski/KnivesImagesDatabase/

Also, we have images of different categories of guns.

http://www.imfdb.org/wiki/Category:Gun

We can take datapoint from COCO dataset

http://cocodataset.org/#download

Techniques Involved:

1. Deep learning frameworks: Keras with backend of Tensorflow or MXNET.
2. FLASK
3. Data wrangling
4. Data Augmentation
5. Packages: YOLO v3

Overview: