**Custom Activity Detection on Yolov3 of Adult and Kid:**

Prepare Dataset or use any prepared dataset with proper labels and annotations

For training yolov3 model on collab, I’ve followed these steps.

1. Download Darknet

<https://github.com/pjreddie/darknet>

Download darknet and make changes in Make file

GPU = 1

CUDNN=1

OPENCV=1

Replace new make file with old one in colab.

1. Download Pre-trained weights for yolov3

<https://pjreddie.com/media/files/darknet53.conv.74>

Keep these weights in darknet folder on colab.

1. Changes in cfg file

In directory **darknet\cfg**, creating a copy of ***“yolov3.cfg”*** in the same folder and rename it.

Make these changes according to your number of classes.

**# Line 8 & 9:**

**width = 416, height = 416**

**# Line 20**

**max\_batches = 6000**

**# Line 22**

**steps = 5400**

**#Line 603, 689, 776:**

**filters = 18**

**#Line 610, 696, 783:**

**classes = 1**

***Formula for filters = (filters = (classes + 5)\*3)***

***filters=(2+5)\*3 = 21*** **classes = 2.**

After making changes add this cfg file in cfg folder.

1. Detector.c file

From directory **darknet\examples**folder, open file **“*detector*.c” . At line 138, modify this line as below:**

if(i%1000==0 || (i < 1000 && i%100 == 0)){

1. Split Train and Test data

**Code:**

import glob, os

## Current directory

current\_dir = '/content/drive/My Drive/backup/'# Path to the current directory

#print(current\_dir)

# Percentage of images to be used for the test set

percentage\_test = 10;

# Create and/or truncate train.txt and test.txt

file\_train = open('train.txt', 'w')

file\_test = open('test.txt', 'w')

# Populate train.txt and test.txt

counter = 1

index\_test = round(100 / percentage\_test)

for pathAndFilename in glob.iglob(os.path.join(current\_dir, "\*.jpg")):

title, ext = os.path.splitext(os.path.basename(pathAndFilename))

if counter == index\_test:

counter = 1

file\_test.write(current\_dir + title + '.jpg' + "\n")

else:

file\_train.write(current\_dir + title + '.jpg' + "\n")

counter = counter + 1

After dividing train and test data, change their paths according to colab path to access data from drive. Keep all these files along with data on drive as well.

1. Data and names file

Change names file according to given annotations 0 or 1 to which activity.

0 adult

1 kid so make names file as

adult

kid

For data file add these things

***classes= 2 #number of objects, in our case are 2  
train = data/train.txt  
test = data/test.txt  
names = data/yolo.names  
backup = backup***

1. Setting Colab

After downloading darknet to colab.

* Replace makefile
* Add cfg file in cfg folder
* Add(train.txt, test.txt, names file, data file) in data folder
* Change detector.c in examples folder
* Add darknet53.conv74 to darknet folder.

**Files:**

After training I’ve changed .weights files to .tflite format because you have to use it with Raspberry Pi

AKid.ipynb is training code

Kidwebcam.ipynb is webcam code

Yolo.names is label file you can also use .txt file

Yolov3.tflite is model converted to tflite

Yolov31\_200.weights are the original trained weights

Yolov3.h5 is model converted to Keras

You can use any format according to your need. ☺