**Classes the model is trained and tested upon:**

* person
* chair
* laptop
* cell phone
* mouse
* book
* tvmonitor
* bottle
* keyboard
* handbag
* clock

**challenges:**

* Earphone was a necessity to be detected which the model was unable to detect.

**Dataset:**

* 1000 images were clicked and labelled using LabelMe (8-10) days.
* Out of 1000, 800 images were taken as training dataset and 200 as testing dataset.
* I explored about object detection problem and get to know about YOLOV4 for object detection via research papers, blogs, videos and decided to use it.
* We did Transferring learning and used pre-trained weights (model which was trained on COCO Dataset having 80 classes) which kept on optimizing. I have changed the last part wherein I have specified the number of classes as 11.
* After training, the model was tested on those 200 images and it gave 0.7 on training images and 0.6 on testing images.
* mAP value is less because it depends on both correct class identification and the correct bounding box that is made near the object.
* Accuracy maybe affected as the model was not detecting some objects like earphone.
* Now the model was deployed on the live feed (headband/webcam) for real time application.
* More than 50 times tested the live feed under different conditions, it was able to identify the different objects (less/more objects, brightness of the room, etc.)
* On an average, 82% (say 8 out of 10) of the objects were detected by the model. For ex: the image on the GitHub was not able to detect bottle as well. (82 came because here only detection is talked upon and not about the bounding box).

Note: We did training because the actual COCO dataset had 80 classes and we wanted to specify for some classes according to out problem.