**Project 2 - Assessment Details**

**GitHub Link:** [**https://github.com/aswinrajeevofficial/RaspCaptcha**](https://github.com/aswinrajeevofficial/RaspCaptcha)

1. Since the remote machine had a bug relating to RDP, the generation and training of captchas were done on my local system. Several approaches were tried and tested, but 4 out of 6 models gave a score of 0. After adding a space to the symbol set and only generating captchas of length 6, the score improved. Since it took a really long time for training (over 6 hours on GPU for a training set of 256K), additional approaches could not be tested thoroughly. (A comparison between the symbols on the correctly predicted captchas and the symbol set was made, and a difference of about 15-20 characters were found. This would have brought about an improvement definitely, but couldn’t be executed)
2. The steps for running the automation script and the details regarding that have been provided in the README.
3. The development environment was mostly on my local machine which is an HP Omen AX248TX gaming laptop, with 12gigs of RAM and 2GB of GDDR5 graphics memory (GTX 1050). The development was done on the Spyder IDE and the operating system was Ubuntu 20.04. The generation of captchas (training images, validation images), training of the model, and the conversion of the TensorFlow model to TensorFlow Lite model were done on this system. The other development environment was the Pi that was assigned to me which is (rasp-009.berry.scss.tcd.ie). A virtual environment was set up with all the necessary dependencies to run the tflite model along with an automation script to automate the entire process.
4. The metrics calculated are done using the time() method in Python and it is started right before the classification begins and calculated right after it ends. The classification was performed several times and the metrics remained the same throughout.
5. Unfortunately, a mechanism to save the snapshot of the model was not implemented due to lack of time.
6. Number of correctly solved captchas (319/1000) for the initial set of captchas and (339/1000) for the live set of captchas.
7. The amount of work effected off the Pi includes the generation of images, training of the model, and the conversion of the tf model to tflite model.
8. The amount of work effected on the Pi includes setting up the environment, running the classifier based on the tflite model, and the automation.
9. Since the automation was done on the Pi assigned, the GitHub keys were stored globally that allowed for seamless integration between the local system and the Pi. Each time the classification was done, the changed files are pushed to GitHub automatically and then this can be pulled easily from the local system for any additional modifications.
10. Live Submitty  
    **userid:** rajeeva   
    **Score:** 339/1000