**Deep Learning on Android framework**

Team ID : 6-1

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**Goal & Objectives**

**Motivation**

Now a days, Deep learning is becoming a integral part of every intelligent applications. But we are in lack of providing a capability to combine the deep learning and apk on the mobile itself to make offline/context learning, predictions on the device itself

**Significance**

Our use case significance is to provide app which makes predictions, context learning, inference and etc. via offline on the device itself unlike other apps where it needs to make request to server/cloud from online. One more significance is to access the application anywhere from device without any internet connectivity.

**Objectives**

Our aim is to provide architecture/application by using deep learning techniques on the device itself and apart from that that we would like to make application as lightweight apk with rich intelligent functionality.

**System Features**

1. **Client application**
2. **Deep learning model**
3. **Capability to update the model**
4. **Able to classify, predict, learning and inference.**

**Related Work**

[**https://github.com/tensorflow/tensorflow/tree/master/tensorflow/contrib/lite**](https://github.com/tensorflow/tensorflow/tree/master/tensorflow/contrib/lite)

[**https://github.com/dingjikerbo/Android-DeepLearning**](https://github.com/dingjikerbo/Android-DeepLearning)

[**https://github.com/jxtz518/Tensorflow\_Andriod\_With\_Audio\_Output**](https://github.com/jxtz518/Tensorflow_Andriod_With_Audio_Output)

**Ran, Xukan, Haoliang Chen, Zhenming Liu, and Jiasi Chen. "Delivering Deep Learning to Mobile Devices via Offloading." In *Proceedings of the Workshop on Virtual Reality and Augmented Reality Network*, pp. 42-47. ACM, 2017.**

**Bibliography**

<https://www.tensorflow.org/mobile/tflite/>

<https://developer.android.com/ndk/guides/neuralnetworks/index.html>

<https://www.tensorflow.org/mobile/android_build>

**Project Plan:**

1. Prioritized Features
2. Installing Tensor flow Docker on Mobile.
3. Building Classification or object detection Model on Edge/Mobile Device
4. Inferencing/Testing the models accuracy
5. Datasets
6. <http://yann.lecun.com/exdb/mnist/>
7. <https://archive.ics.uci.edu/ml/datasets/reuters-21578+text+categorization+collection>
8. [http://qwone.com/~jason/20 Newsgroups/](http://qwone.com/~jason/20Newsgroups/)
9. Technologies (Open source projects)

Keras Library with Tensor flow backend

Android Neural Network API

Docker with Tensor flow image

**Schedule for the 3 increments**

1. Project Timelines, Members, Task Responsibility
   1. Increment-1 Feb,23, Rohithkumar, Nageswara Rao, Tensor flow Docker on Mobile
   2. Increment-2 Mar,19, Rohithkumar, Nageswara Rao, Building Deep Learning Model on device
   3. Increment-3 Apr,23, Rohithkumar, Nageswara Rao, Inferencing training results
2. Burndown Charts



