Project Report

AIM : Utilizing TinyML library, develop a project on a single board computer or microcontroller.

PROJECT : Indian Note Detection

**ITEMS USED** : Tensorflow lite, Colab, Computer

THEORY :

TinyML refers to the field of ML that focuses on deploying and running machine learning models on resource-constrained devices, particularly on microcontrollers with limited memory, processing power, and energy resources. The goal of TinyML is to enable machine learning applications on edge devices, such as sensors, microcontrollers, and other IoT devices, without relying on a constant connection to the cloud.

The TensorFlow platform is an end to end open source machine learning platform for everyone which helps you implement best practices for data automation, model tracking, performance monitoring, and model retraining. Using production-level tools to automate and track model training over the lifetime of a product, service, or business process is critical to success.

Colaboratory, or "Colab" for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education. More technically, Colab is a hosted Jupyter notebook service that requires no setup to use, while providing access free of charge to computing resources including GPUs.

ARCHITECTURE :
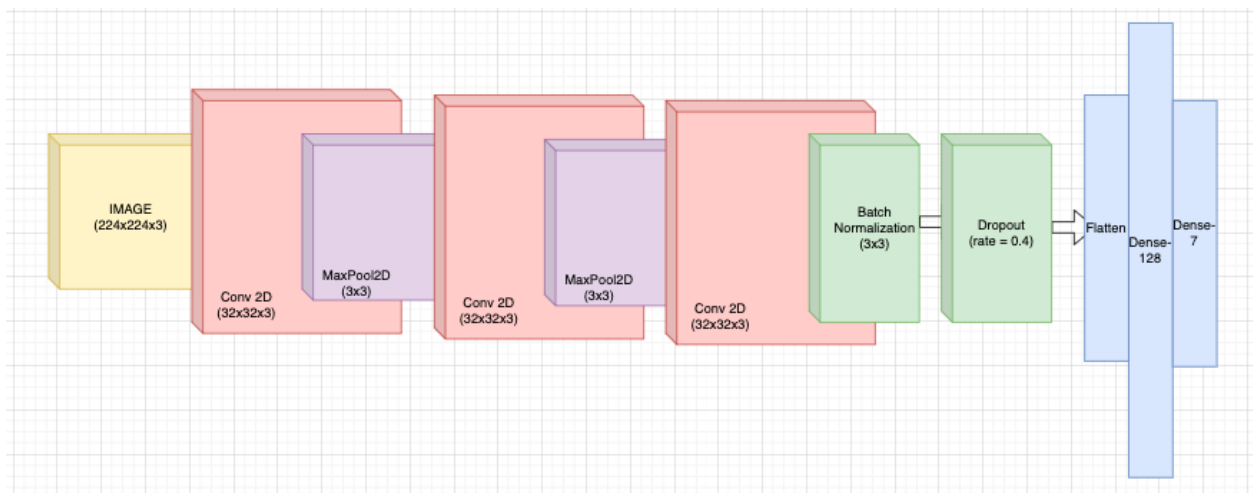
APPLICATION AND CONSTRUCTION :

1) We use a device (either a microcontroller or single board computer) which has a dataset of all indian notes of various denominations
https://prod-dcd-datasets-cache-zipfiles.s3.eu-west-1.amazonaws.com/8ckhkssyn3-1.zip

2) The dataset was made for the project- Currency detection for the visually impaired using edge devices

3) This dataset can be useful the researchers who are working on currency-related problems like currency classification

4) This project also completely tarnishes the use of counterfeit currency

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