

Low Level Design (LLD)

Face Mask Detector

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Abstract

COVID-19 pandemic has rapidly affected our day-to-day life disrupting the world trade and movements. Wearing a protective face mask has become a new normal. In the near future, many public service providers will ask the customers to wear masks correctly to avail of their services. Therefore, face mask detection has become a crucial task to help global society and to track the health protocols violators.

COVID-19 mask detector could potentially be used to help ensure your safety and the safety of others .

1 Introduction

1.1 Why this Low-Level Design Document?

The purpose of this document is to present a detailed description of the FMD System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system and will be proposed to the higher management for its approval.

The main objective of the project is to predict if a person is wearing a mask or not based on the FMD and take necessary actions .

1.2 Scope

This software system will be a Web application This system will be designed to detect policy violations in the locality based on various mak/non maks data use to train our algorithm ,so we can identify vilators and help us to prevent the virus spreading

1.3 Constraints

Whenever FMD detects any violation,it will inform concerned authorities and take necessary action, so it should be as accurate as possible.

1.4 Risks

Document specific risks that have been identified or that should be considered.

1.5 Out of Scope

Delineate specific activities, capabilities, and items that are out of scope for the project.

2 Technical specifications

2.1 Dataset

Disease	Finalized	Source
with_mask	yes	Kaggle/Google images
without_mask	Yes	Kaggle/Google images

2.1.1 With mask dataset overview

Images of People wearing masks with different colors ,different distances and varying numbers of persons by picture .

There are a total of 1915 pictures with masks :

- Training : 1532 pictures
- Testing : 383 pictures

2.1.2 With mask dataset overview

Images of people's faces .

There are a total of 1918 pictures with masks :

- Training : 1534 pictures
- Testing : 384 pictures

2.2 Predicting if wearing a mask

The system displays people's faces with a rectangle and the prediction percentage rate .

- The color will be green if it is wearing a mask
- Red rectangle if not : so the system will take a picture and send it to the supervisor .

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2.3 Logging

We should be able to log every activity done by the user.

- The System identifies at what step logging required
- The System should be able to log each and every system flow.

- Developers can choose logging methods. You can choose database logging/ File logging as well.
- System should not be hung even after using so many loggings. Logging just because we can easily debug issues so logging is mandatory to do.

2.4 Database

System needs to store every request into the database and we need to store it in such a way that it is easy to retrain the model as well.

1. The User chooses the disease.
2. The User gives required information.
3. The system stores each and every data given by the user or received on request to the database. Database you can choose your own choice whether MongoDB/ MySQL.

2.5 Deployment

The model is deployed to Firebase



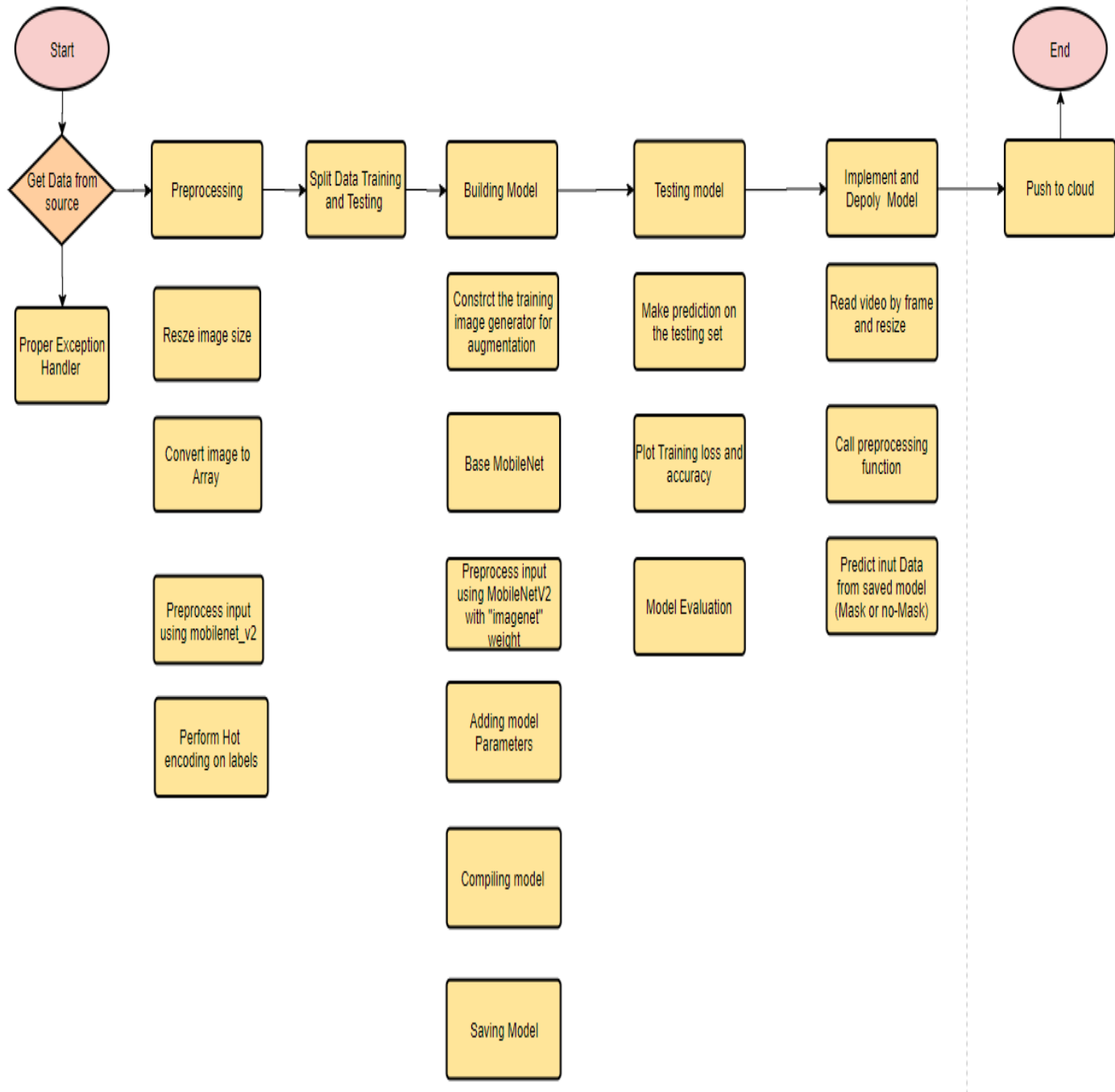
3 Technology stack

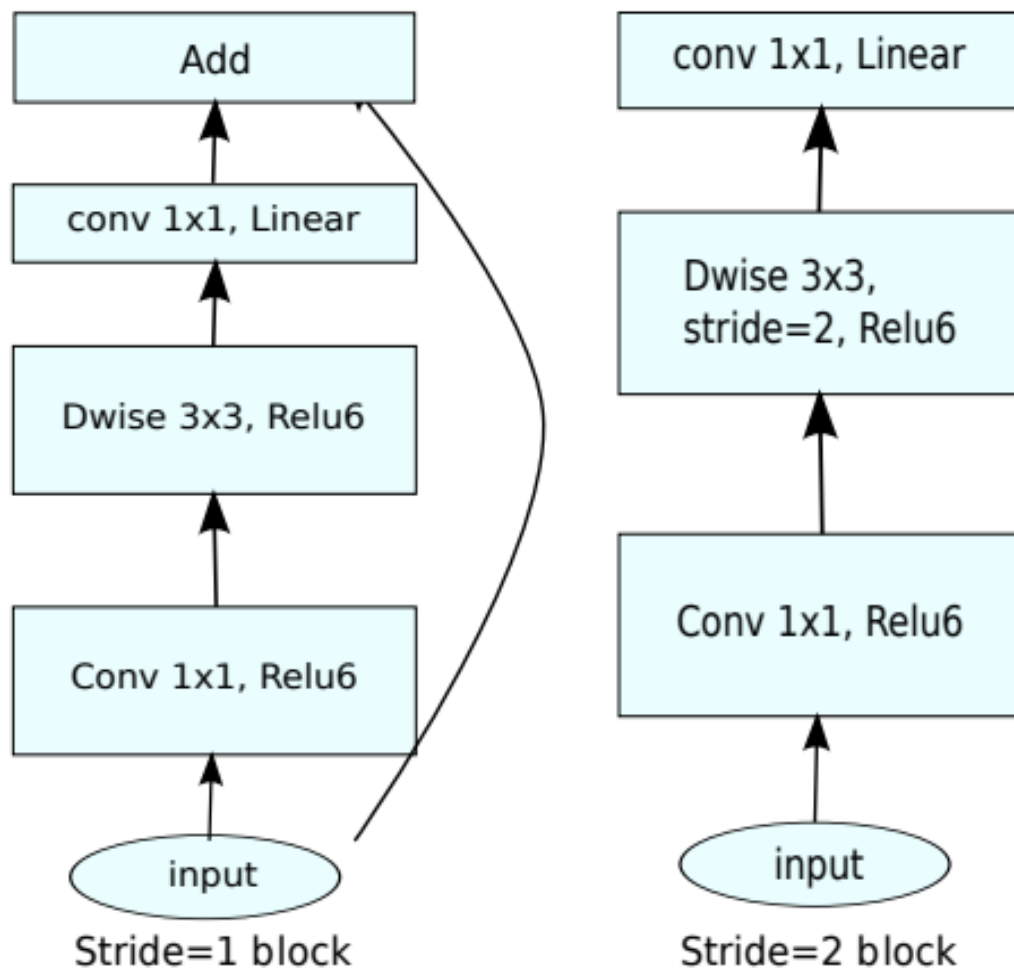
Front End	HTML/CSS/JS
Backend	Python
Database	MongoDB/MySql
Deployment	Firebase

4 Proposed Solution

we'll be fine-tuning the **MobileNet V2 architecture**

5 Model training/validation workflow





(d) MobileNet V2

6 User I/O workflow

