Guide Me

Indoor Navigation for the visually impaired

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Introduction

Types of Visual Impairment

- Loss of central vision
- Blurred Vision
- Loss of peripheral vision
- Generalized haze

Motivation

- **Assistance** needed to help the visually impaired perform normal every day tasks might not be available.
- **Availability** of mobile phones for visual people only.
- The high **cost** of visually impaired electronic assistance.
- According to the latest survey provided by the World Health Organization, there are more than 2.2 million people with visual impairment in Egypt, 900,000 of which are totally blind

Solution

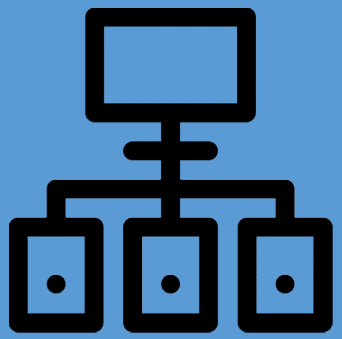
Mobile Application that:

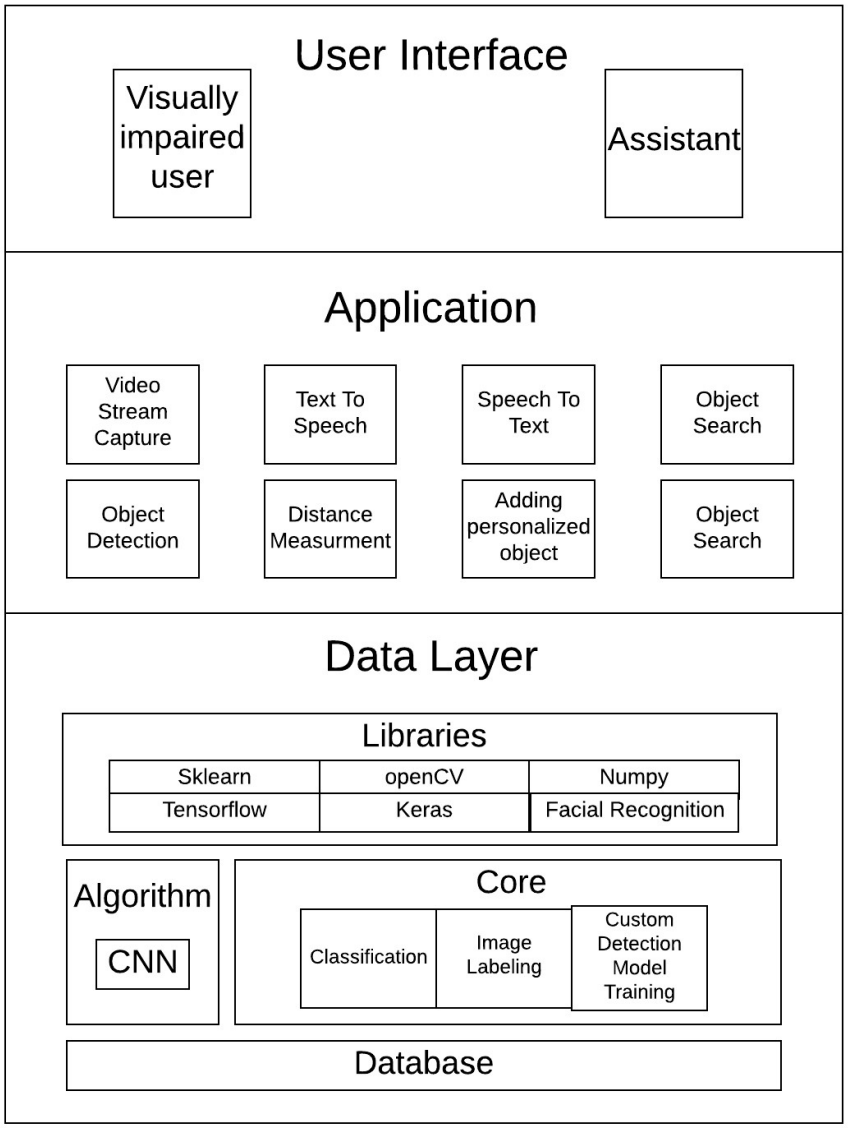
- Acts as the user's eyes in the context of searching for object's and obstacles.
- Allows the user to search for his desired object and provide guidance to reach it
- Allows the user to freely roam the room warning him of any obstacle facing him.
- Allows the user to add his own personalized objects.

Problem Statment

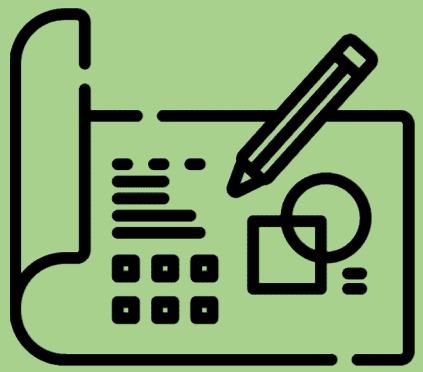
Navigation of users with any type of impairment could now be done freely and safely even in new places which is the most tackled issue by anyone with vision impairment as well as find their own objects which is something provided in our system using find my object module.

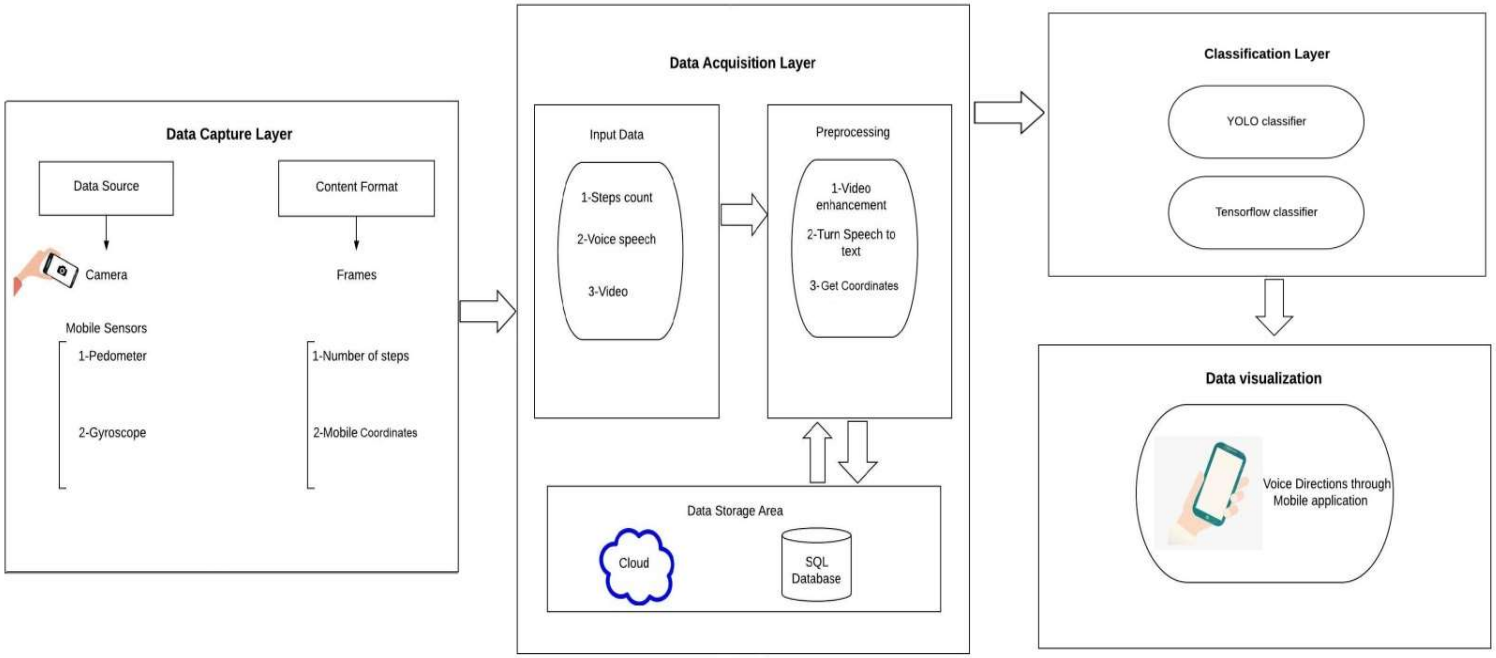
Architecture Design



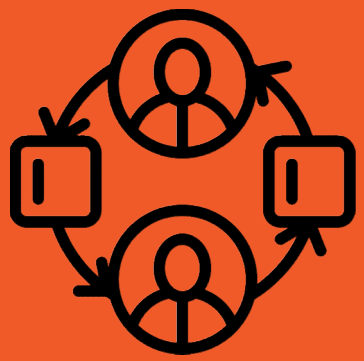


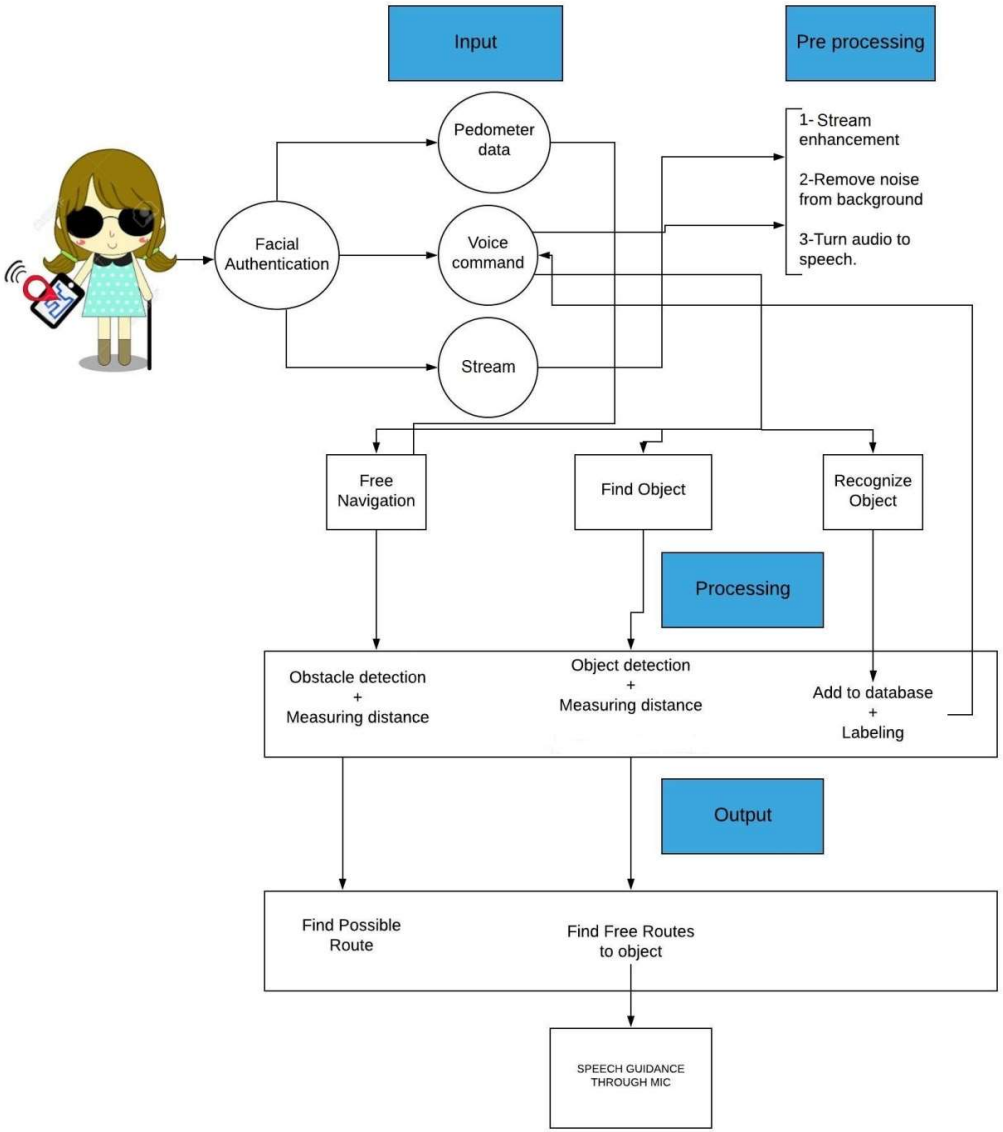
Block Diagram



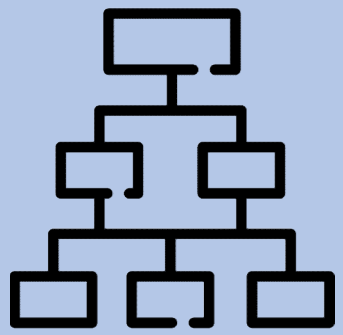


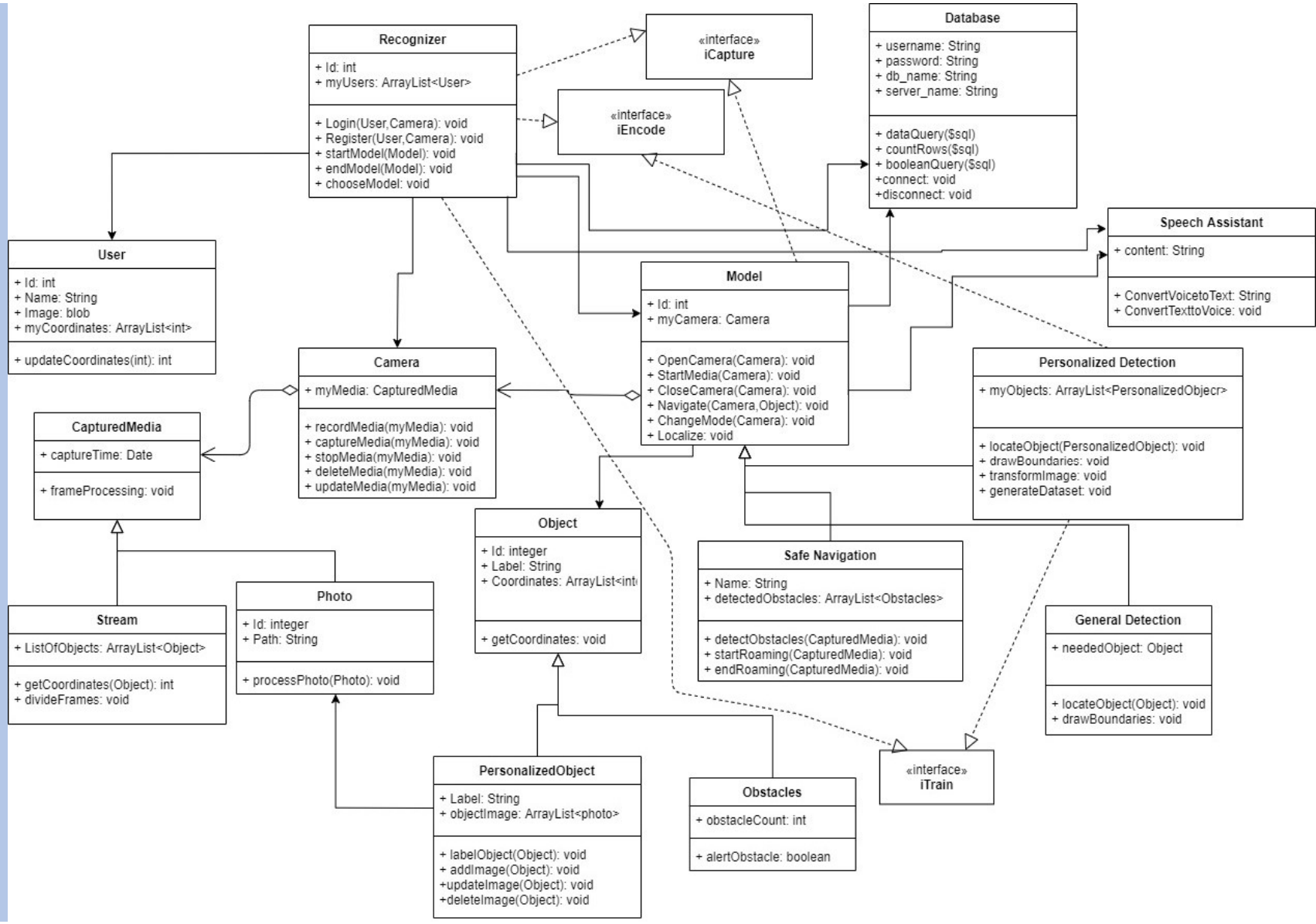
System Overview



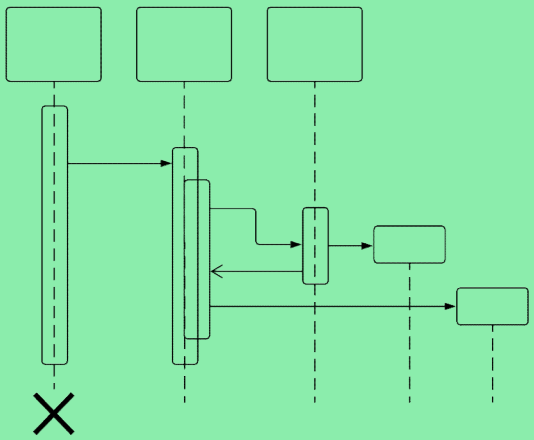


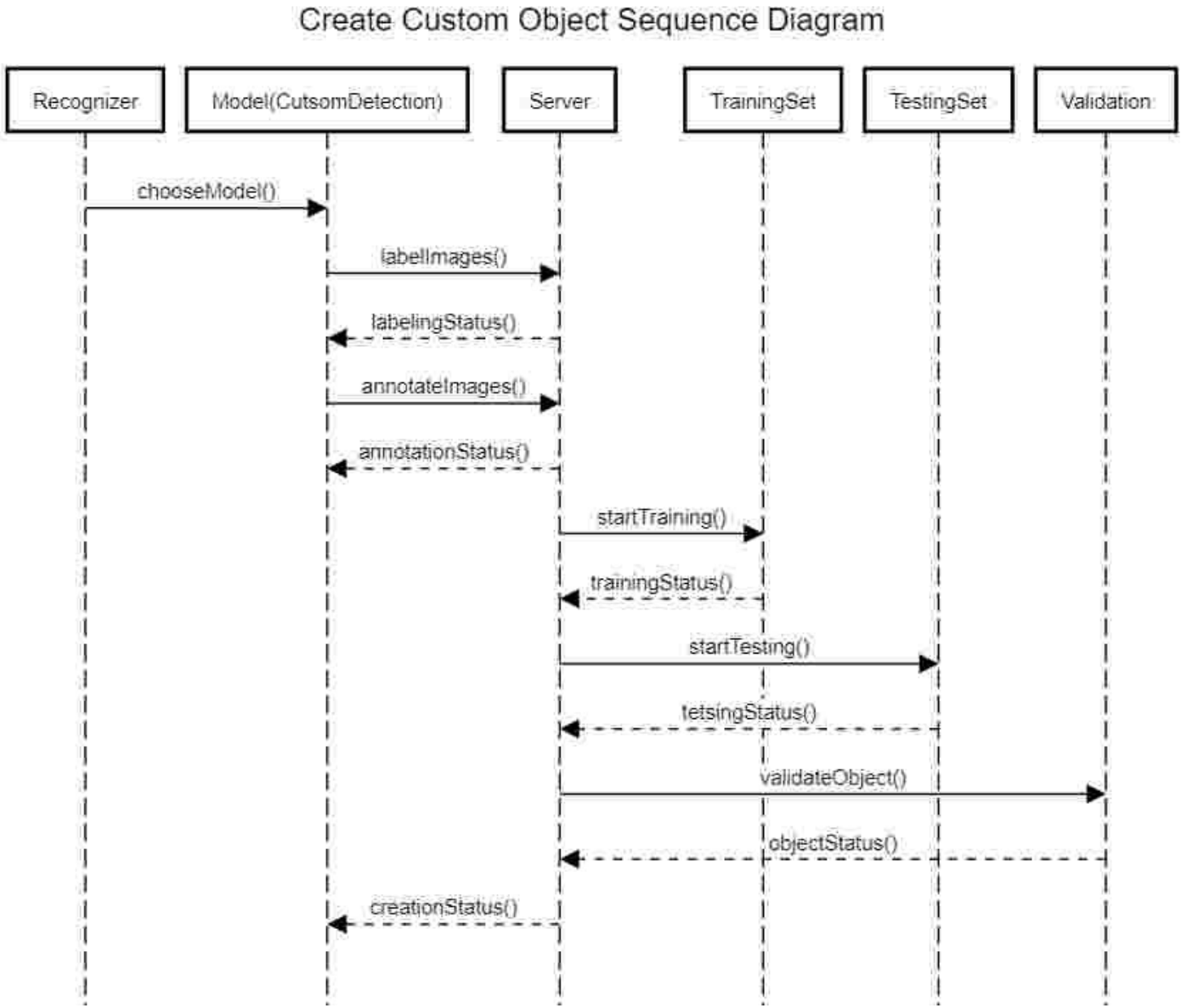
Class Diagram



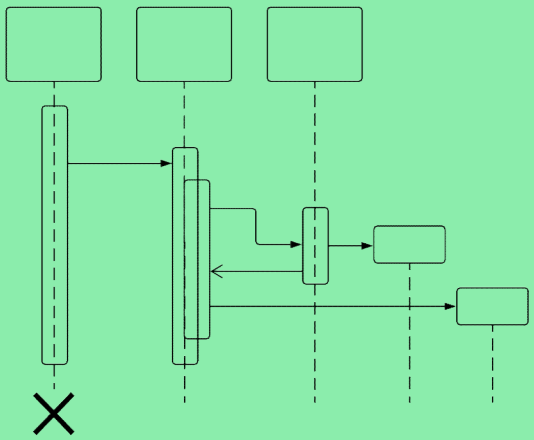


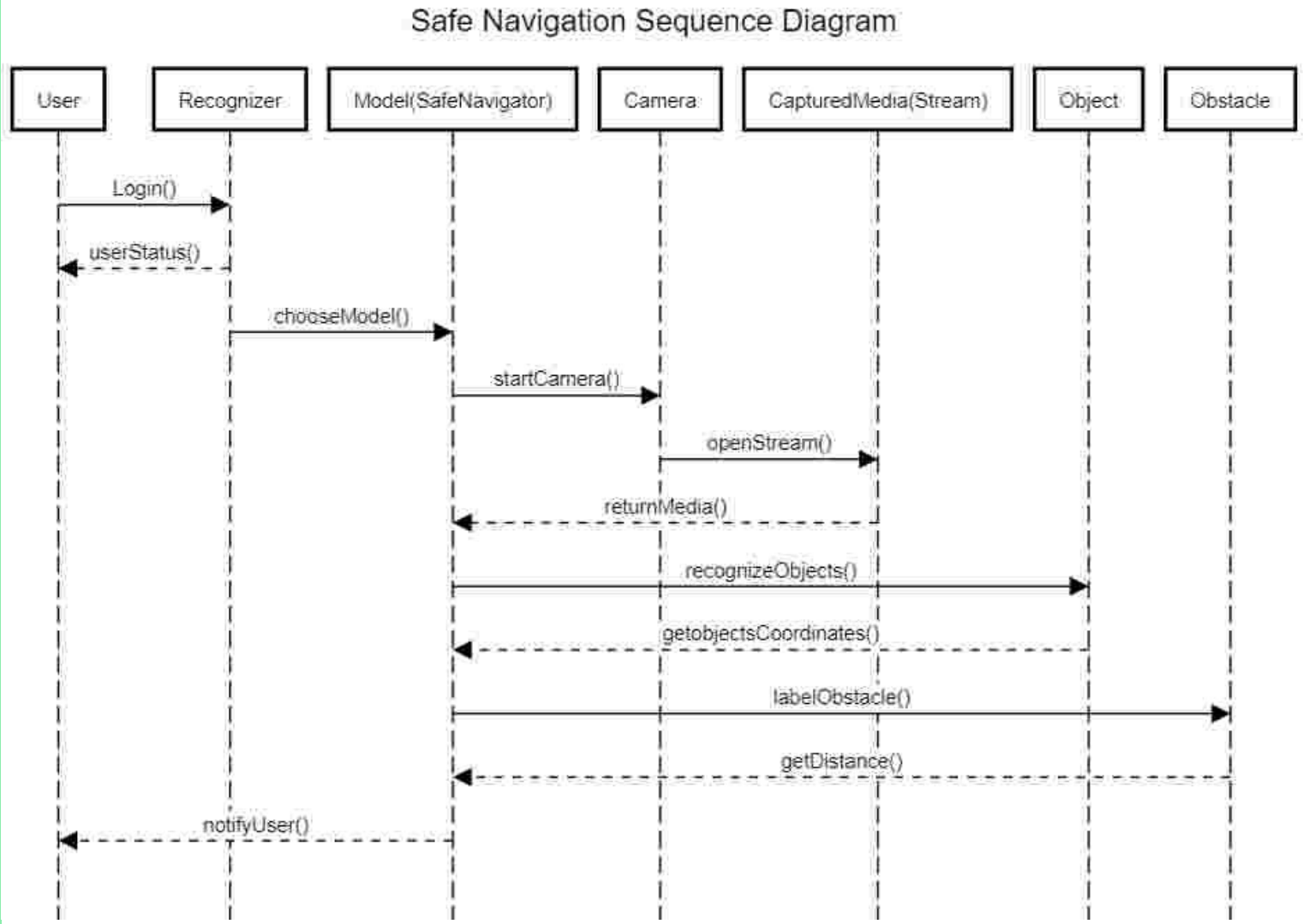
Sequence Diagram



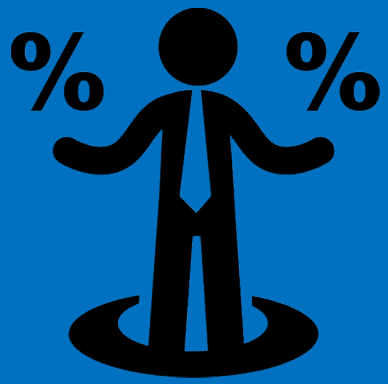


Sequence Diagram





Design Rational



Our work

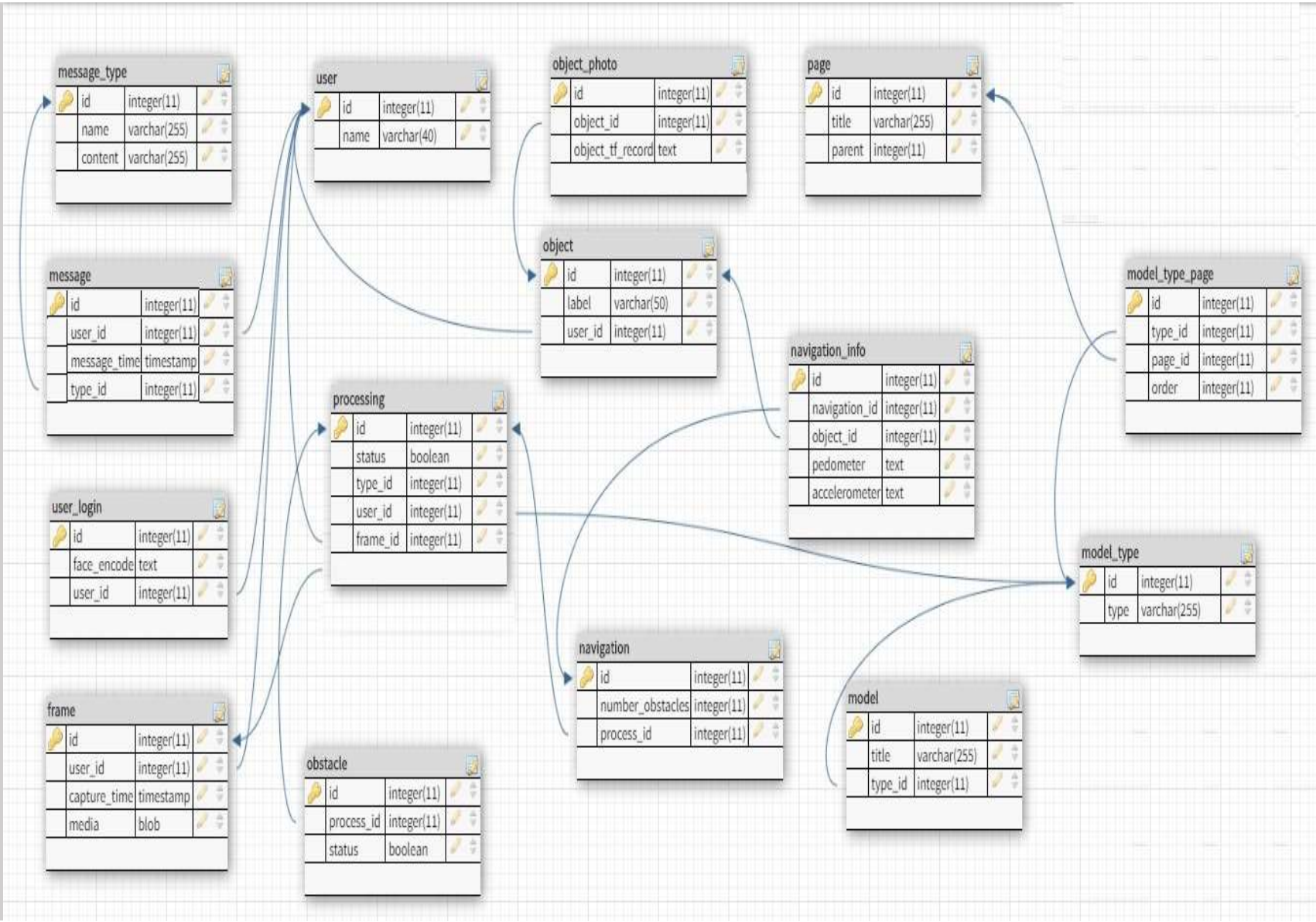
- **MobileNet** using **SSD**
- **Distance** using **triangle similarity**

$$D = (W*F)/P$$

Backend Stack

Mobile Stack

Database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accelerometer text
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frame_id integer(11)
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obstacle
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status boolean

Demo

Thank You