AUTOMATIC RECOGNITION OF FISH DISEASES IN FISH FARMS

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Objective

Automatic Identification of Fish Diseases at early stage to prevent fish diseases from spreading. And Analyzing fish behavior as it helps in Prediction and detection of fish disease.

Introduction

The purpose of this Software Requirements Specification document is to outline our system requirements for Automatic Recognition of Fish Diseases in Fish Farms. The main requirements for this system are identify and diagnose some fish diseases at early stage before spreading, and Analyzing fish behavior as it helps in Prediction and detection of fish disease.

❑ Problem Statement

✓ Fish disease diagnosis suffers from some limitations that need high level of expertise to be solved.
✓ Experts may face some problems due to Fast fish movement, which cause tracking infected fish to be impossible by human vision.
✓ Poor quality of unclear water in Earthen ponds also cause limitations in diagnosis and tracking.

❑ Objectives

✓ Using image processing and computer vision techniques
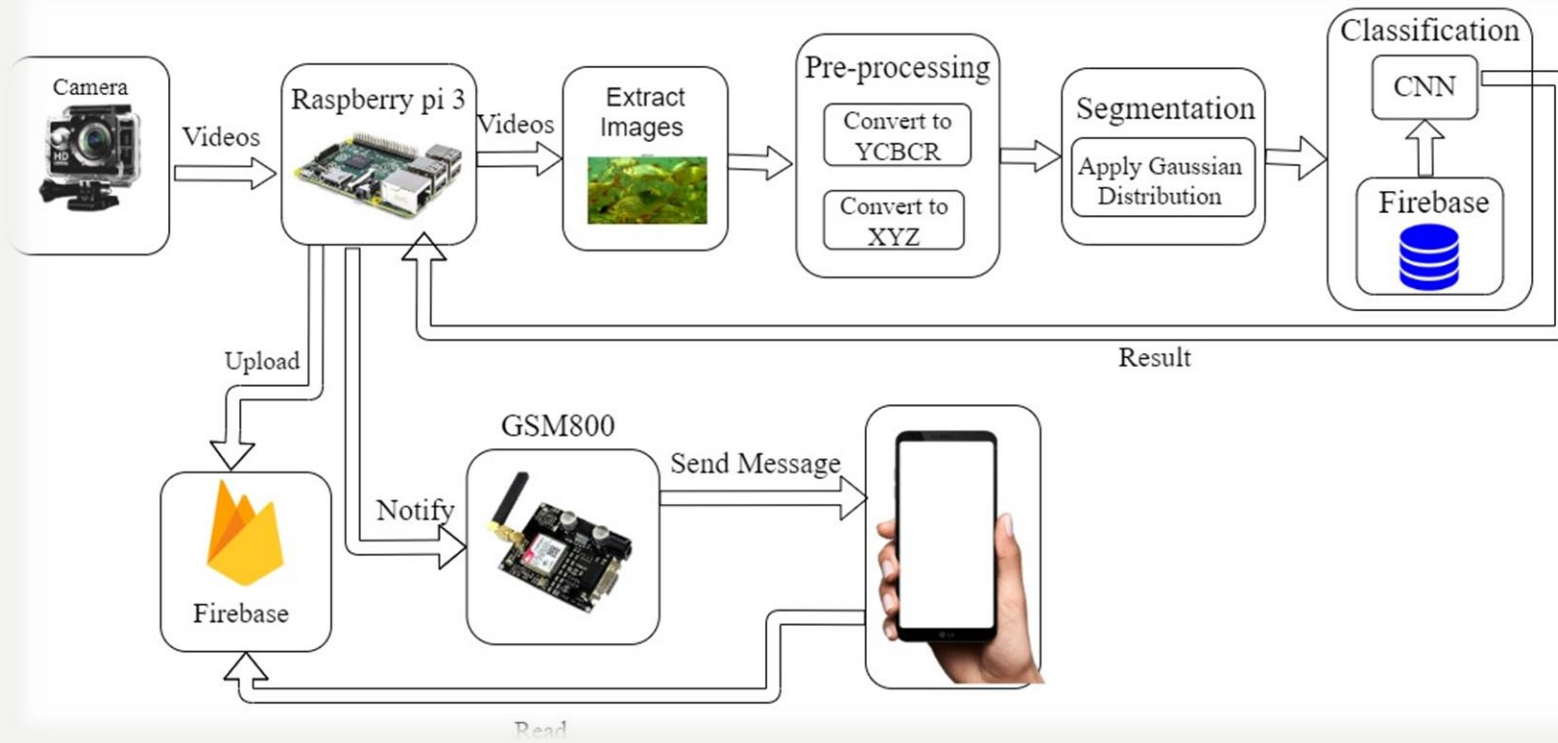
❑ General Constraints

✓ There is no system that has no constrains, our system will have some constrains:

Overview

-Our proposed approach aims to detect and diagnose fish diseases in fish farms automatically .
-sends message to mobile to notify them of any improper changes in farm environment or detected infections.
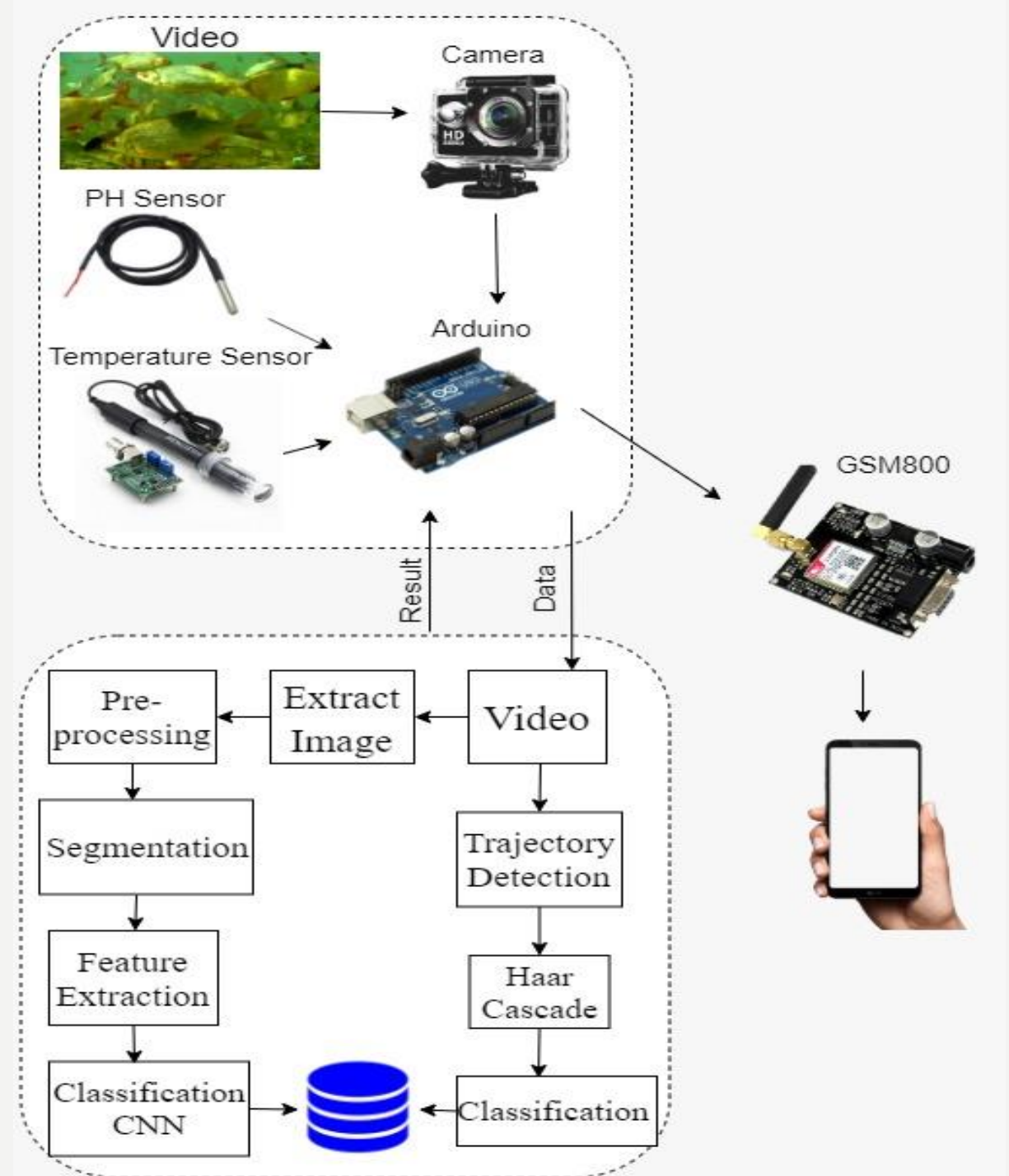
Functional Requirements

FID	FR
Name	Create XML file
Description	This XML file contain data which is extracted from video to be compared with frames taken from video.
Input	image
Output	XML file
Action	compare data in XML with given image
Pre-condition	Images from the dataset
Post-condition	XML Created
Dependencies	None

FID	FR18
Name	CNN Classifier
Description	this function is used to train data and integrate with it with features to classify new inputs of images
Input	training features
Output	Accuracy results
Action	Training features are mentioned including functions for pre-process of images
Pre-condition	Testing and training available but not calculated with each other
Post-condition	Training and testing compared with each other then the disease is classified
Dependencies	segmentation and preprocessing

FID	FR
Name	Trajectories
Description	This function is used divide videos into two classes normal/Ubnormal.
Input	Trajectory videos
Output	Videos are divided into normal/abnormal
Action	Split trajectory videos into normal/abnormal
Pre-condition	Videos
Post-condition	Videos are aplitted to normal/abnormal
Dependencies	None

Functional Requirements

FID	FR18
Name	Apply Gaussian distribution
Description	It applies the predefined Gaussian filter on the image
Input	YCBCR image
Output	segmented image
Action	It applies the gaussian filter on the image after applying the low-pass filter
Pre-condition	The image before applying the Gaussian filter
Post-condition	The image after applying the Gaussian filter
Dependencies	ycbcr function

FID	FR21
Name	Data augmentation
Description	This function is used to increase the diversity of images that is available in data-set for training models
Input	RGB image
Output	Size of training data-set is expanded
Action	Choose an image to apply data augmentation on it.
Pre-condition	RGB image
Post-condition	Collection of RGB images
Dependencies	None

Non Functional Requirement

Security **Maintainability** **Reliability** **Performance**

USE CASE
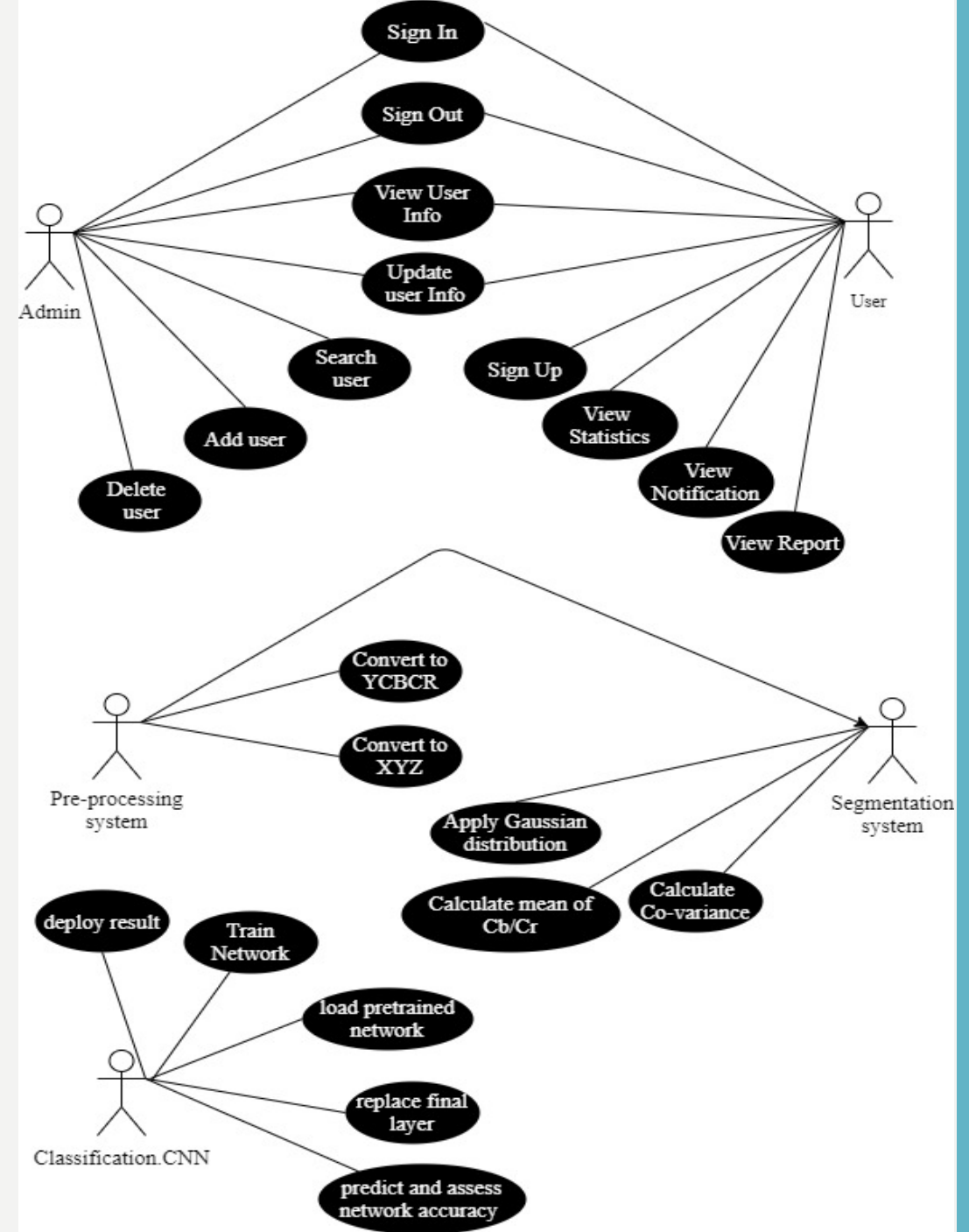
CLASS DIGRAM
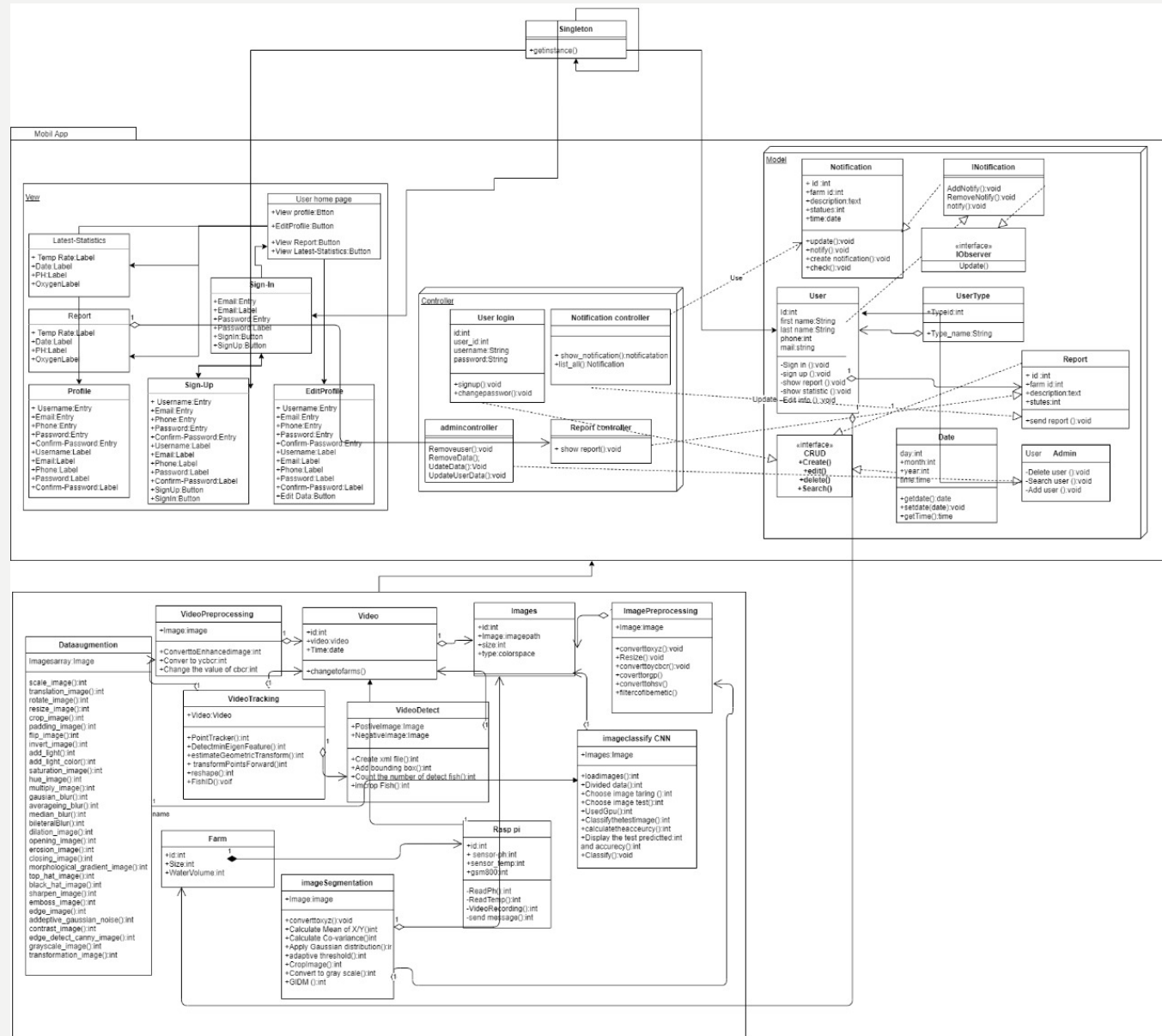
CLASS DIGRAM

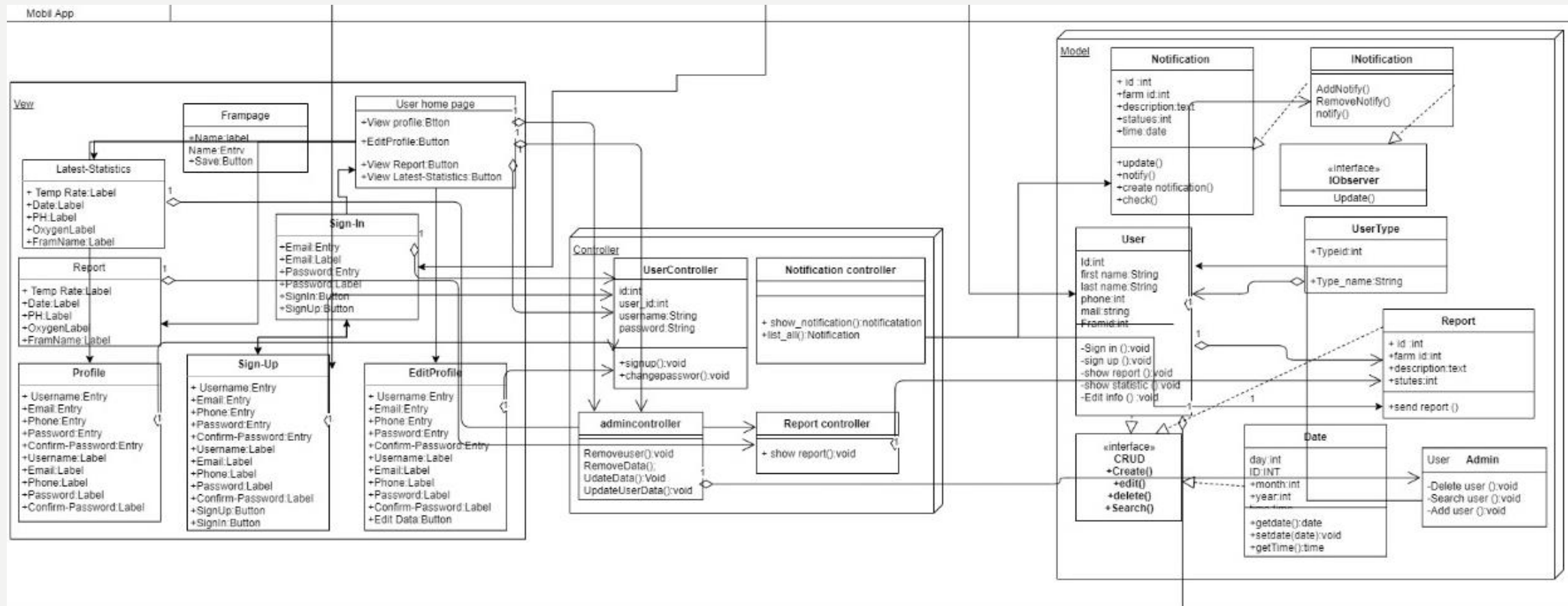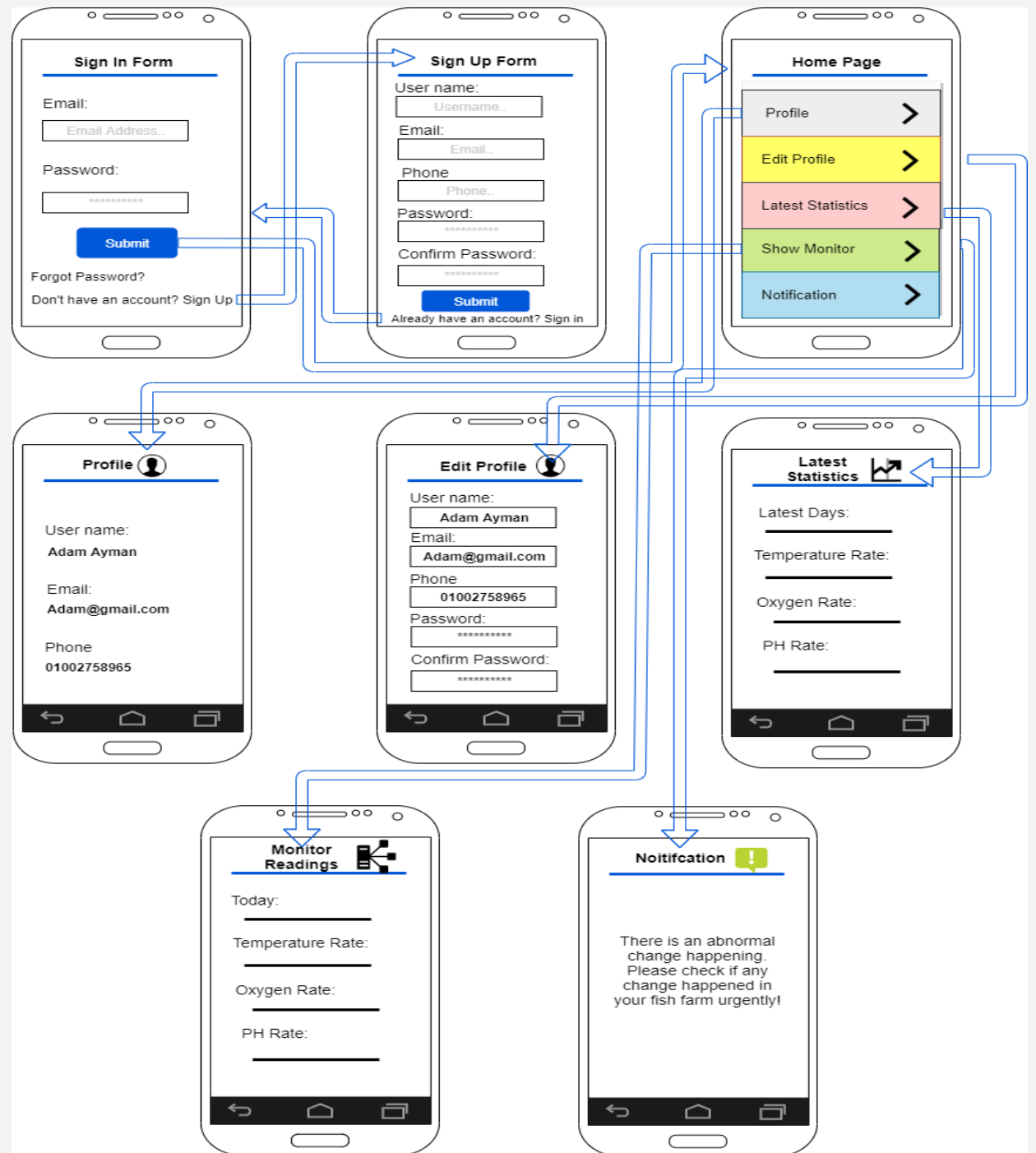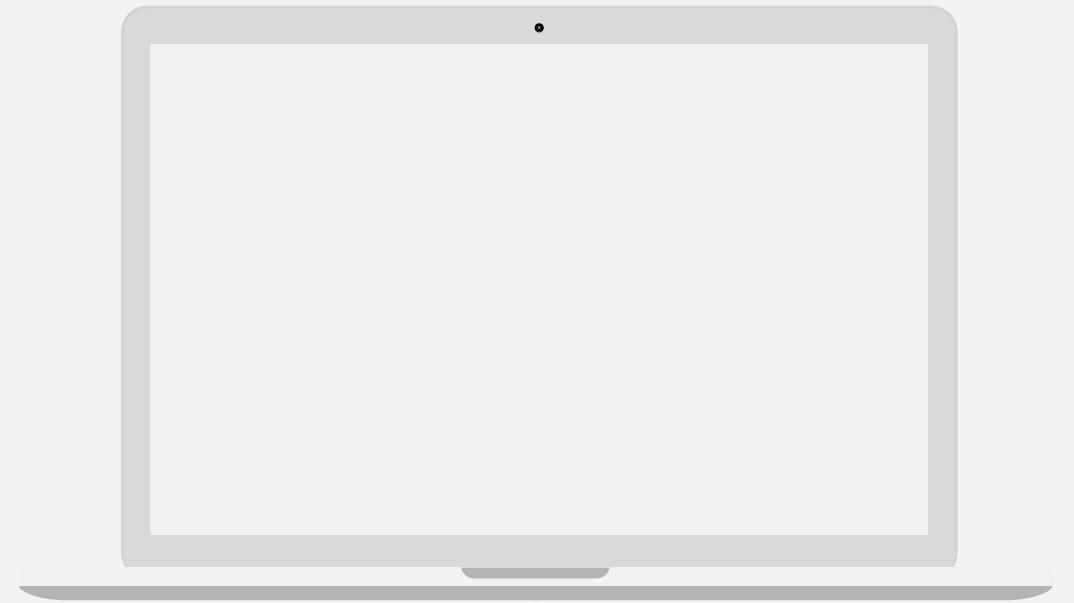# USER'S APPLICATION WIREFRAME

Demo

Thanks!

Any questions?