AIDI-1003-02-Capstone Project - Term I
Kick-off Presentation

Team The Big Four

Tech – Lead   – 100872247 || Pritesh Dalal
Team – Member   – 100849798 || Shenglin Qian
Team – Member   – 100886648 || Rutvik Alkeshbhai Shah
Team – Member   – 100854077 || Mehmet Bugra Gunaydin

Content

1 Introduction

The Project

The project our team will be working on is "P1 - Fire Detection and Localization Using Surveillance Camera"

The main goal of this project is developing an AI powered system that can detect fire and place using surveillance camera video and inform user if a fire event occurs.
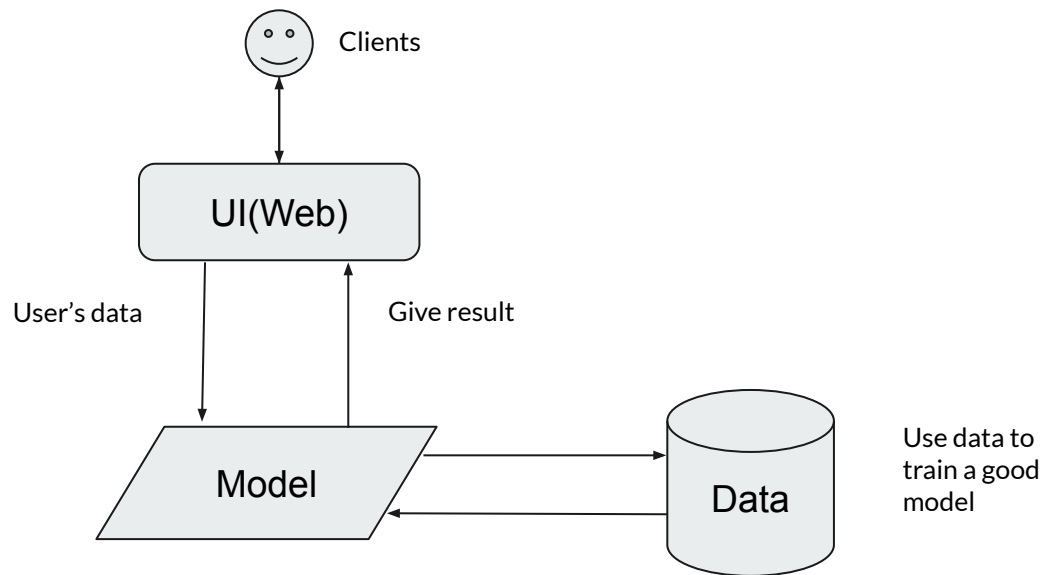
Team Members and Duties

Tech - Lead – 100872247 || Pritesh Dalal
        Team management, Coding, dataset preparation

Team – Member – 100849798 || Shenglin Qian
        Model building and training

Team – Member – 100886648 || Rutvik Alkeshbhai Shah
        Coding, mobile app development

Team – Member – 100854077 || Mehmet Bugra Gunaydin
        Web development, testing
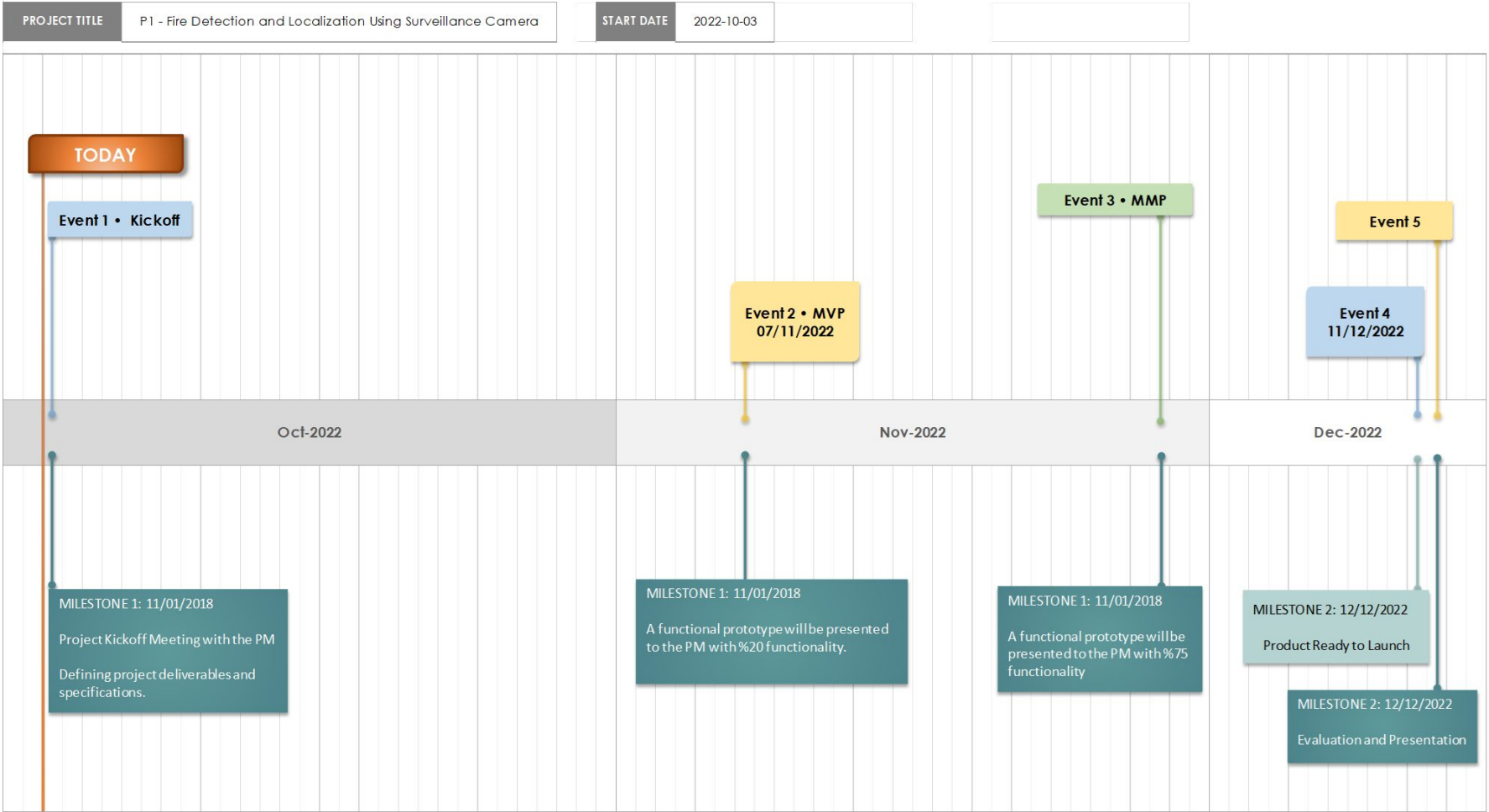
Big picture of our project

Project Scope

Scope of this project consists;
- Developing an AI model that can detect fire and place using surveillance video
- Obtaining training datasets for fire detection
- Training the AI model for accurate fire detection
- Testing the model with real-world data
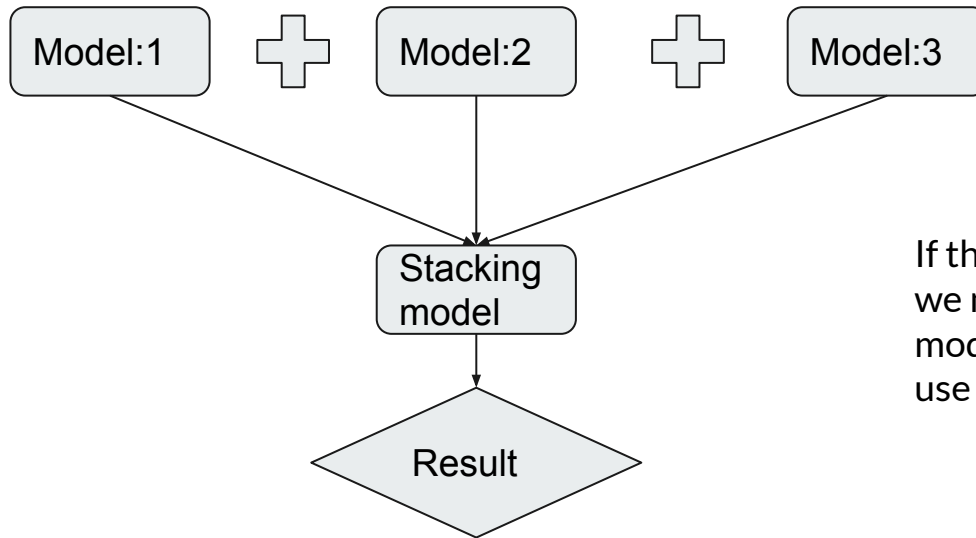- Developing a user interface for real-time monitoring

Project Execution Timetable

PROJECT TITLE — P1 - Fire Detection and Localization Using Surveillance Camera

START DATE — 2022-10-03

TODAY

Event 1 • Kickoff

Event 2 • MVP
07/11/2022

Event 3 • MMP

Event 5

Event 4
11/12/2022

Oct-2022

Nov-2022

Dec-2022

MILESTONE 1: 11/01/2018

Project Kickoff Meeting with the PM

Defining project deliverables and specifications.

MILESTONE 1: 11/01/2018

A functional prototype will be presented to the PM with %20 functionality.

MILESTONE 1: 11/01/2018

A functional prototype will be presented to the PM with %75 functionality

MILESTONE 2: 12/12/2022

Product Ready to Launch

MILESTONE 2: 12/12/2022

Evaluation and Presentation

2 Model part

Model Design

Best situation!

If the progress does not go well, we may do not have enough models to stack. If then, we will use only one model

Workflow

Information collection	Build Model	Improvement

Before building our model, we would like to read some papers or investigate what people have done in fire detection. We plan to collect and read some papers in this field. In this period, we need to finish two targets:

1−What kind of model are they used most frequently.

2−What kind of data do we need

We would select one or two models to start our own work, and we will collect the data we need.
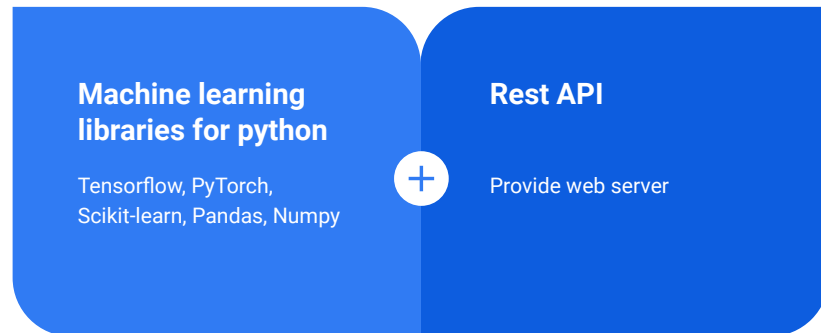After we decide which model we would like to use, we need to know that

This part is depends on how our model operates. In most cases, we may have some problems, such as not enough data, unexpected results. We may also need to stack model to get better result.

Technologies to be Used in Model

Machine learning libraries for python

Tensorflow, PyTorch, Scikit-learn, Pandas, Numpy

+

Rest API

Provide web server

TensorFlow and PyTorch are both great tools for machine learning. We will use one of them or both in this project.

Resources

01 **Kaggle**
- A lot of people shared their model in kaggle, and that is a great place to start our work
- Kaggle also provide the data, which make us easy to collect

02 **Github**
- Many people share their model and tutorial in Github. We can learn from them.
- A great place to team collaboration

03 **Google**
- Google provide Colab for free. That is wonderful, because we can use GPU to accelerate our training.
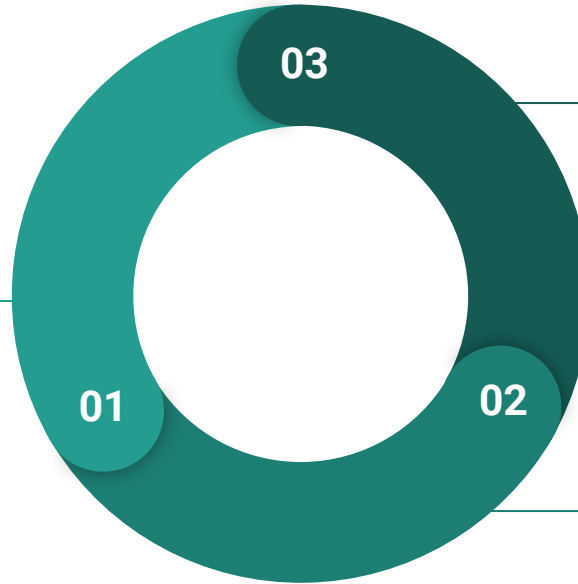- Google drive provide a space for data, and can be easily used by Colab

3 UI Part

Functions

03

Mail automation

We will maintain a mail list for the fire detection. Anyone in the mail list will get a fire alert.

Get user's input

User will use our web page to upload their pic or video to our backbend.

01

02

Get result and show it

When the model finish computing, the webpage will get the result from model, and then show it to the user.

Web Page

- We are planning to host a web page that the client will have access to and will provide the client with real time footage and some additional features.
- Will deploy the web page using Azure or AWS.
- The UI will be concise, user-friendly and efficient.

Possible Use Cases

In this day, surveillance cameras are anywhere, public areas, buildings, houses are being watched by surveillance cameras and many camera feeds are available online.

The finished product could be used anywhere with surveillance cameras, especially large buildings sensitive to fire like schools, malls, government and military buildings, restaurants, office towers.

Using the existing camera network as data feed would lower the cost of deploying a fire detection system.

Product of this project could be connected to feed automated first responder systems like fire departments.