CROP DISEASE DETECTION

PROBLEM ID:#THC08

TEAM NAME:INNOVATIVE GEEKS

TEAM LEADER:A.KRISHNA KANTH(17C043)

TEAM MEMBERS:

1. S.J.RETHINA DURAI(17C075)
2. K SELVAMANI(17C140)

CREATRIX'18

OBJECTIVE

The crops die due to various diseases and this leads to low production rate which further leads to the high selling price of crops in the market.This affects the economy of most of the developing countries like India.Our main objective is to create awareness about the diseases and their preventive measures.Our target users are farmers, botanists, common people who grows plants in their roofs,gardens etc.

INNOVATIONS

- Apart from giving the causes and solutions for the diseases,we will be providing the nearby pesticides and manure shops location precisely using Google Maps API
- Our application connects the users and the shop owners directly so that both parties get benefitted by our product
- We’ll be recommending online pesticides and manure providers details also.

PROJECT WORKFLOW

So to prevent that knowledge barrier, our application comes to the aid.The solution we give is as follows:

- First of all, the user uploads the images of the diseases affected crops/plants.
- Then the image is sent to the server where it is analysed for the possible disease using the CNN architecture we built.
- Once the correct disease is predicted, the server replies with that disease name, causes for that disease,solutions and the preventive measures to stop the occurrence of that disease in future.
- Additionally we recommend pesticides shops near the users,online websites that sells pesticides at nominal rates.

TECHNOLOGY STACK

CLIENT SIDE:

- HTML,CSS,BOOTSTRAP
- JAVASCRIPT
- JQUERY

SERVER SIDE:

- PYTHON
- KERAS
- TENSORFLOW
- NUMPY
- FLASK

DETAILED PROBLEM SOLUTION

Collection of Image Datasets:

The Image dataset is collected from Plant-Village for training and testing purposes.The size of the dataset is **54,000+**.For validation purpose, the images are downloaded from google.The dataset consists of 38 classes.

Collection of disease related informations:

The causes,solutions,preventive measures for the diseases are collected and stored in the database.The address of the nearby pesticide shops are fetched using **Google Maps API.**The websites that provides pesticides and manures are stored in the database.

DETAILED PROBLEM SOLUTION

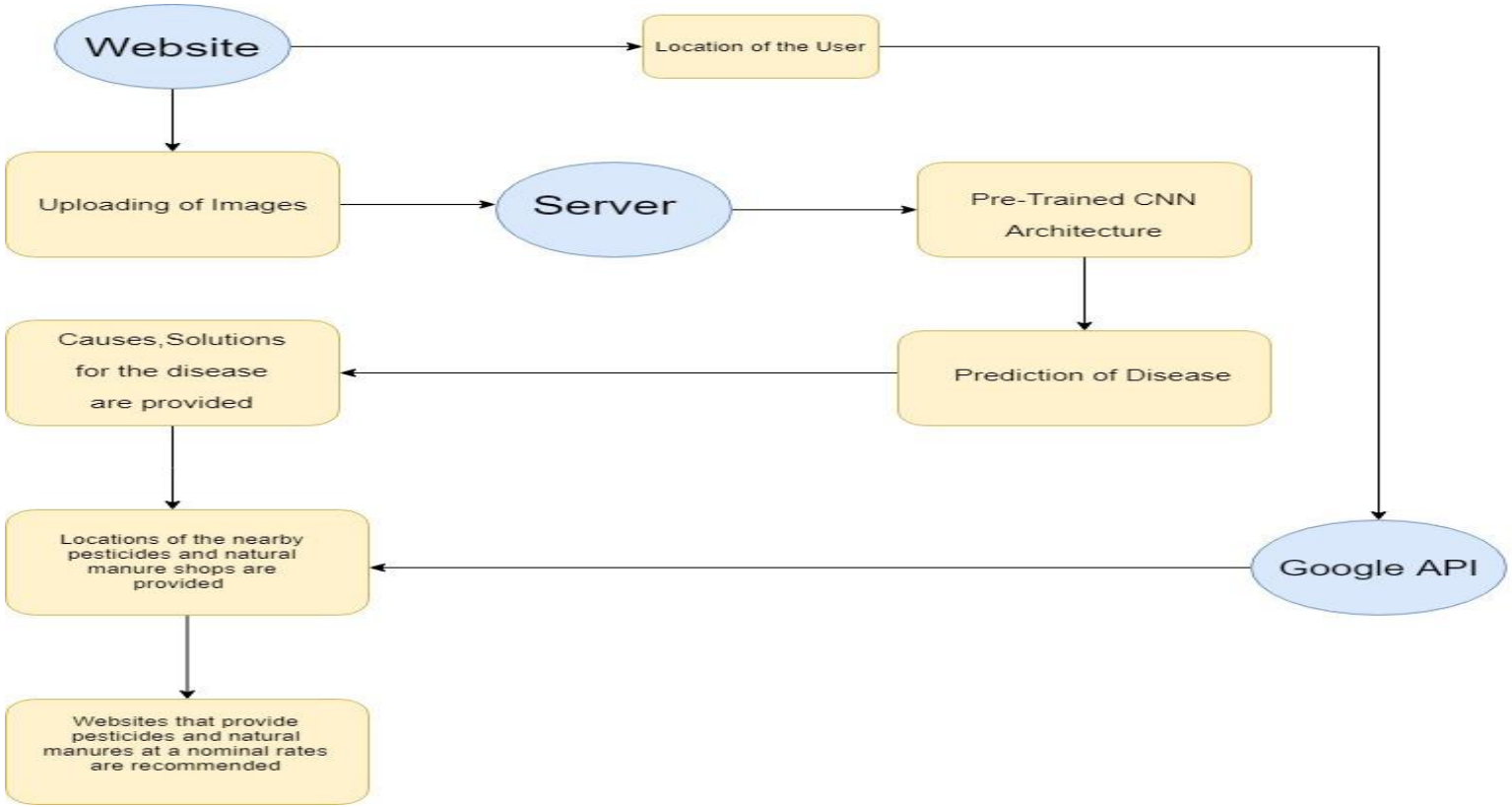
Training, testing and validating our CNN architecture:

We divide our dataset into 80 percent and 20 percent for training and testing.We build our **CNN** using Keras on top of tensorflow.Then the Image Augmentation technique is used to get the create more training images through shifting,rotating,shearing of images.Finally our model is ready for training.Then the accuracy is tested using the validation images. Our CNN model weights are saved after getting a good accuracy rate.

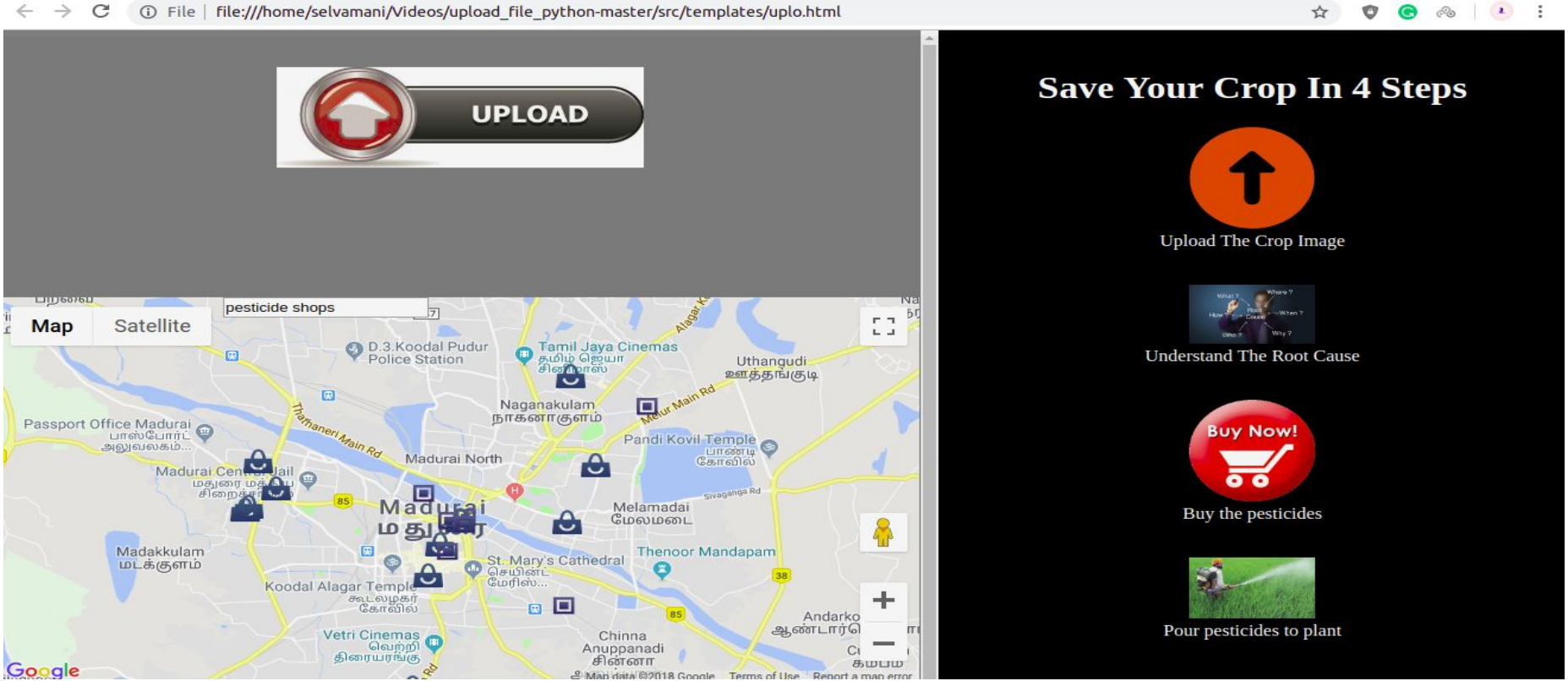
DETAILED PROBLEM SOLUTION

Deployment of our application:

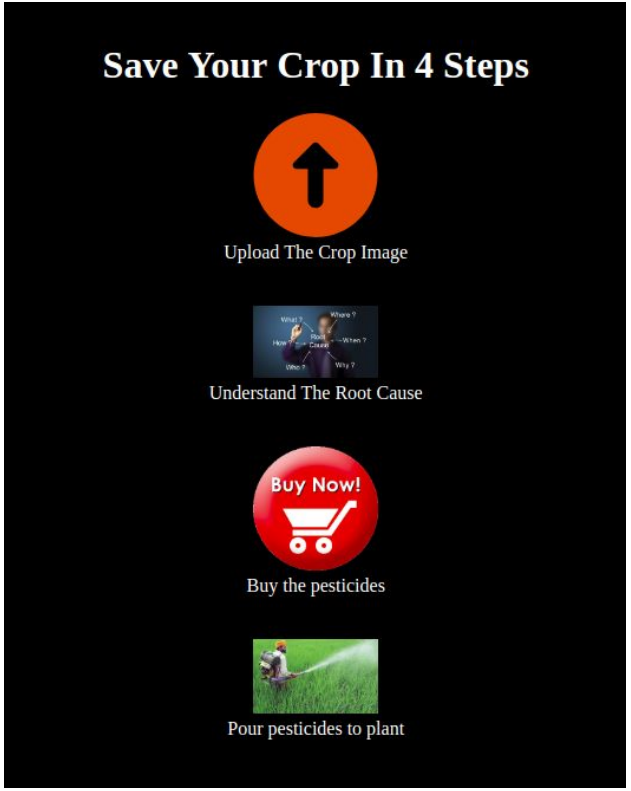
Our final product will be a Web Application.It is built using HTML, CSS, Javascript, Jquery, Bootstrap.The basic template is made using HTML.It is styled using CSS.To create a responsive web-app bootstrap is used.The DOM is manipulated using Javascript and Jquery.The data is retrieved from the server asynchronously using AJAX.Flask Framework is used as our application server.

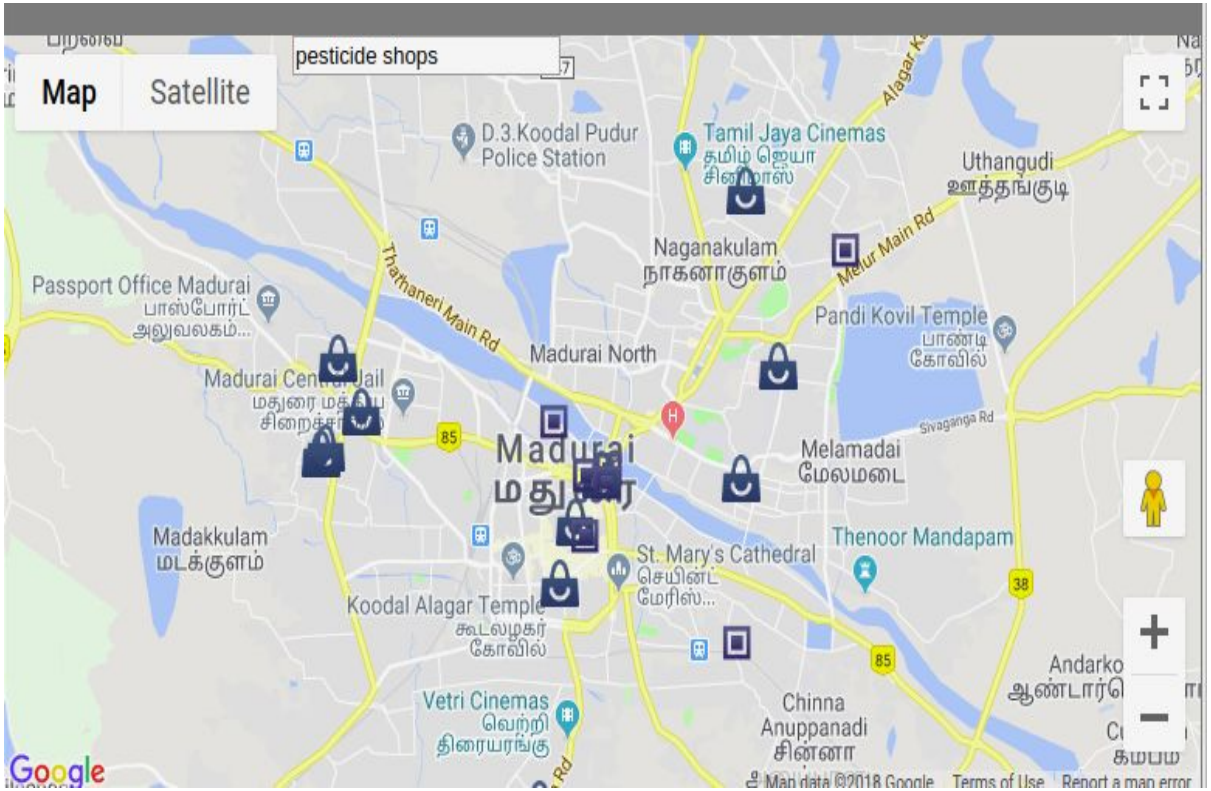


FLOW DIAGRAM



SCREENSHOTS OF OUR PROTOTYPE





SCREENSHOTS OF OUR PROTOTYPE

MARKETING STRATEGY

We optimize our Product Description

We will avoid Lengthy Marketing Emails

We will simplify the content Marketing Strategy with a One-Page Plan

We help customers to solve their problems.

PRODUCT BENEFITS

- It increases the crop production rate of the farmers which furtherly
  increases the economic rate of our country
- It can be used as an educational resource also.
- The common people who grow plants in their houses can greatly benefit from our application
- Through our application we can encourage people to grow more plants and crops in their houses
- We recommend only natural manures and less affecting pesticides so that the environment is not affected

REFERENCES

https://www.frontiersin.org/articles/10.3389/fpls.2016.01419/full