Artificial Intelligence based crop identification

Team: Six_Students

Jannat Chawla

Pradeep Singh

Prikshit Rana

Pushkal Mani

Shubham Dubey

Sudhir Kumar

Why crop identification?

Planning

Government agencies require information on spatial distribution and area of cultivated crops for planning purpose.

Stocking

Adequate planning of import and export of food products

Timely intervention

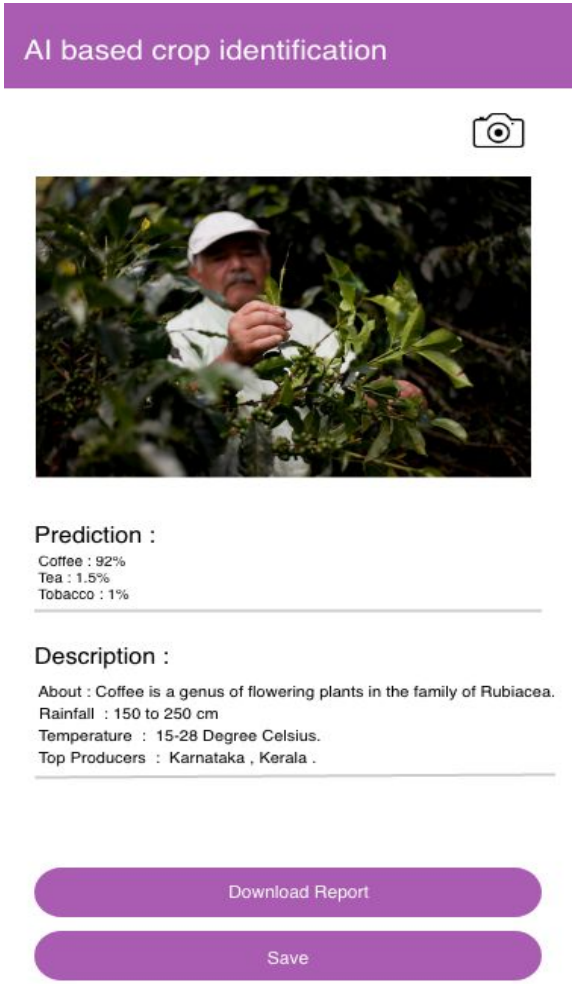
To know feasibility of crop production keeping an eye on weather reports by meteorological department so that timely intervention can be made

Ground surveys are conducted by government agencies to map different crop types but these are:

Challenge 1	Challenge 2	Challenge 3
Expensive	**Time consuming**	**Similar plants can be hard to distinguish by untrained eyes**

Solution

The idea is to build a mobile/web application that allows a user to upload an image for automatic recognition of crops. The database will store the uploaded image , its predicted label and geolocation of the user. This allows organisation to analyse the data in order to



Implementation

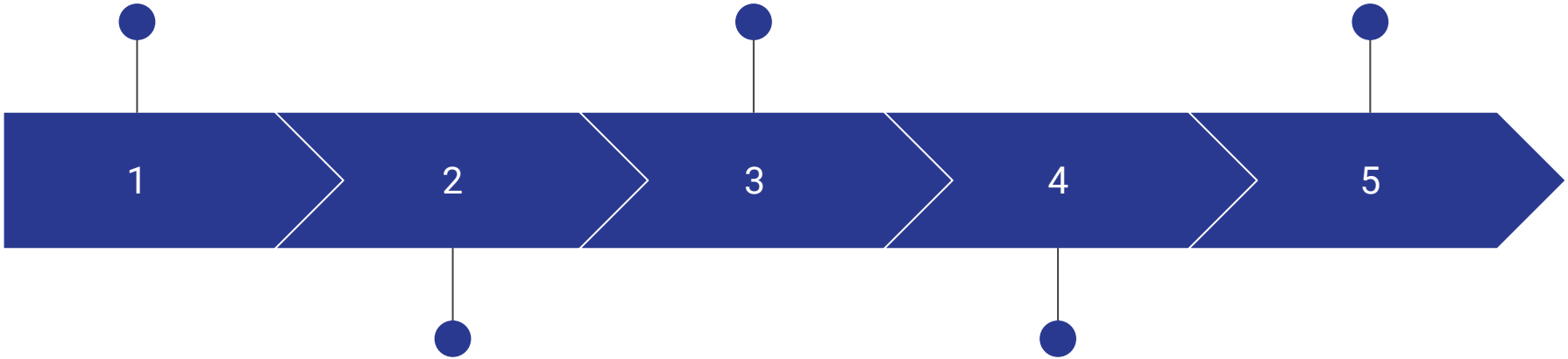
1. Collection of data for 10 different crops found in India.

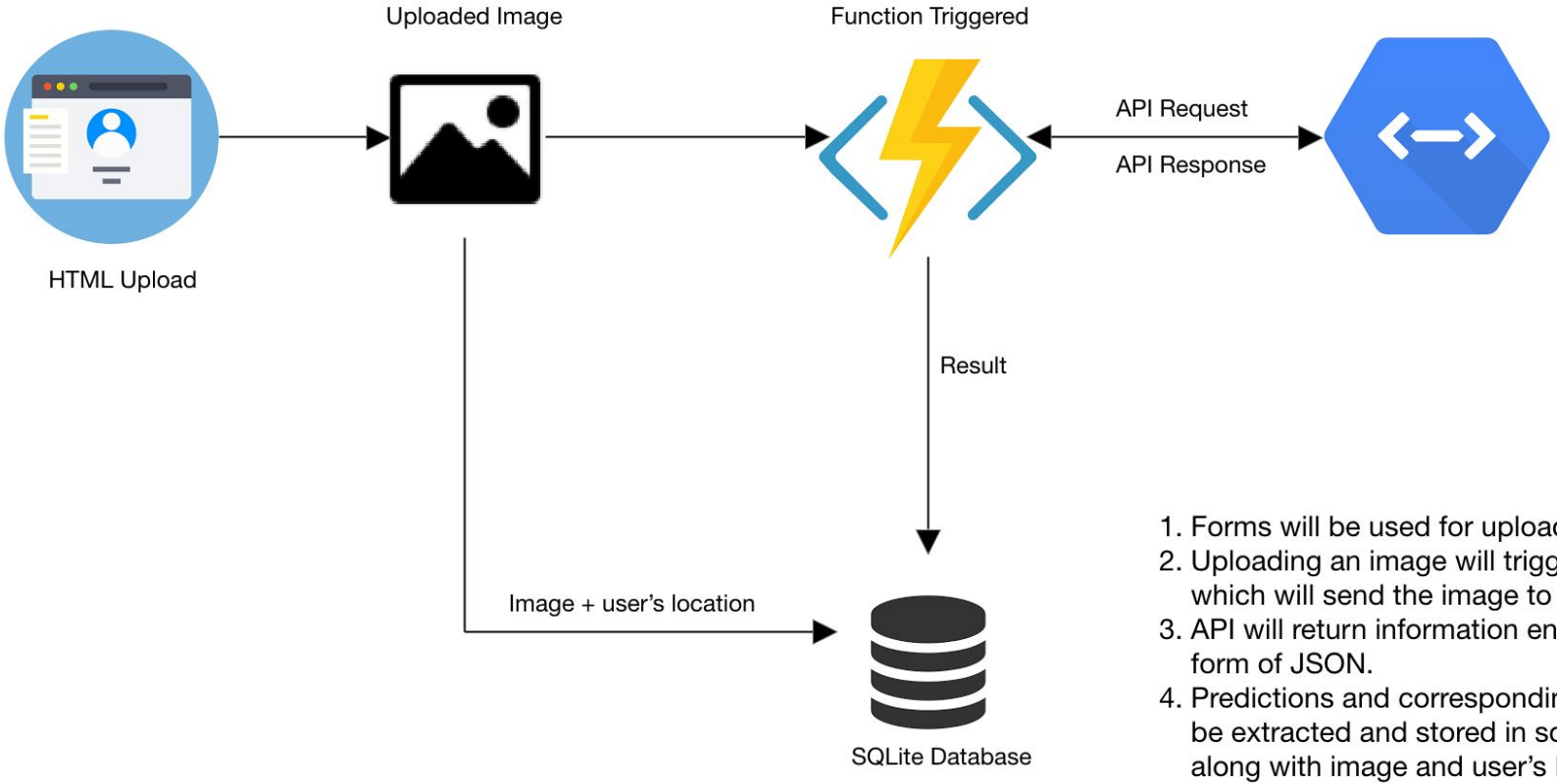
2. Crop identification model training using transfer learning.

3. Deployment of model as an API in IBM cloud.

4. Application development. Backend and user experience provision.

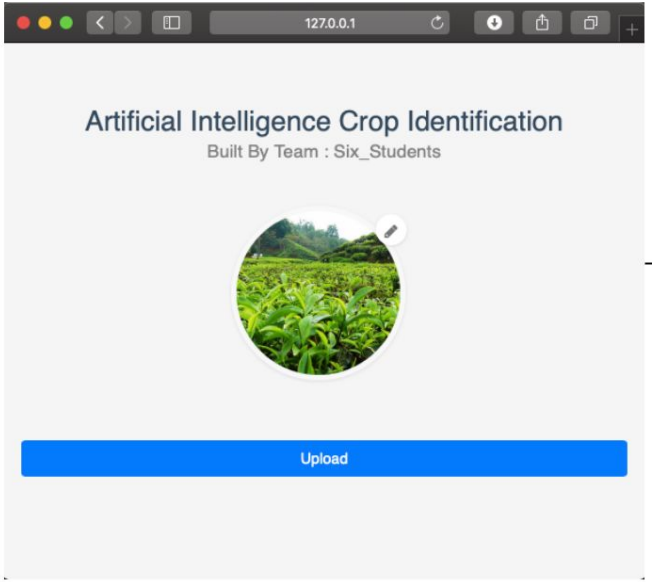
5. Database Development. Storing of crop information and geolocation.





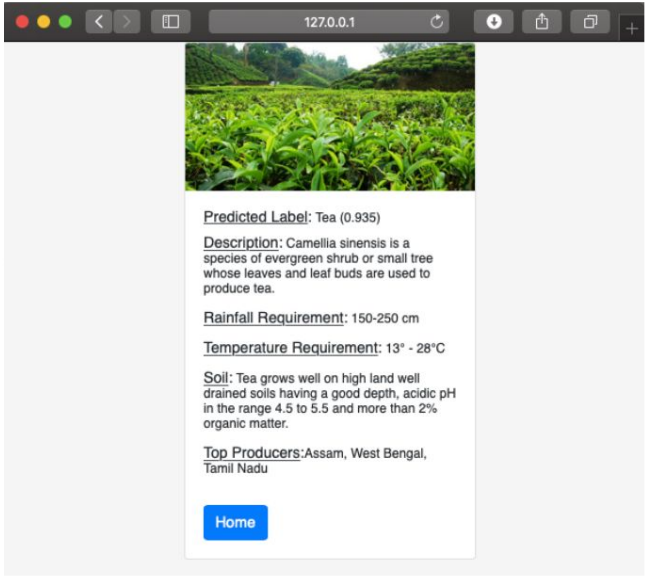
1. Forms will be used for uploading image.
2. Uploading an image will trigger a function which will send the image to API endpoint.
3. API will return information encoded in the form of JSON.
4. Predictions and corresponding scores will be extracted and stored in sqlite database along with image and user's location at the time of upload.

Home Page



Routes to result page

Result Page



Database

Data Output | Explain | Messages | Notifications

	id [PK] integer	image bytea	image_name character varying (200)	predicted_label character varying (200)	user_city character varying (200)	user_country character varying (200)	user_lat character varying (200)	user_long character varying (200)
1	1	[binary data]	/Users/pswaldia1/crop_identification/app/static/cot...	Cotton	Chandigarh	India	30.7363	76.7884
2	2	[binary data]	/Users/pswaldia1/crop_identification/app/static/Te...	Tea	Chandigarh	India	30.7363	76.7884
3	3	[binary data]	/Users/pswaldia1/crop_identification/app/static/Su...	Rice	Chandigarh	India	30.7363	76.7884
4	4	[binary data]	/Users/pswaldia1/crop_identification/app/static/pre...	Tea	Chandigarh	India	30.7363	76.7884
5	5	[binary data]	/Users/pswaldia1/crop_identification/app/static/pre...	Tobacco	Chandigarh	India	30.7363	76.7884
6	6	[binary data]	/Users/pswaldia1/crop_identification/app/static/cot...	Cotton	Jalandhar	India	31.3256	75.5792
7	7	[binary data]	/Users/pswaldia1/crop_identification/app/static/pre...	Coffee	Jalandhar	India	31.3256	75.5792
8	8	[binary data]	/Users/pswaldia1/crop_identification/app/static/pre...	Coffee	Jalandhar	India	31.3256	75.5792
9	9	[binary data]	/Users/pswaldia1/crop_identification/app/static/cot...	Cotton	Jalandhar	India	31.3256	75.5792
10	10	[binary data]	/Users/pswaldia1/crop_identification/app/static/pre...	Coffee	Jalandhar	India	31.3256	75.5792

Future Scope

- Detect plant diseases using images
- Segmentation of weeds to improve image classification