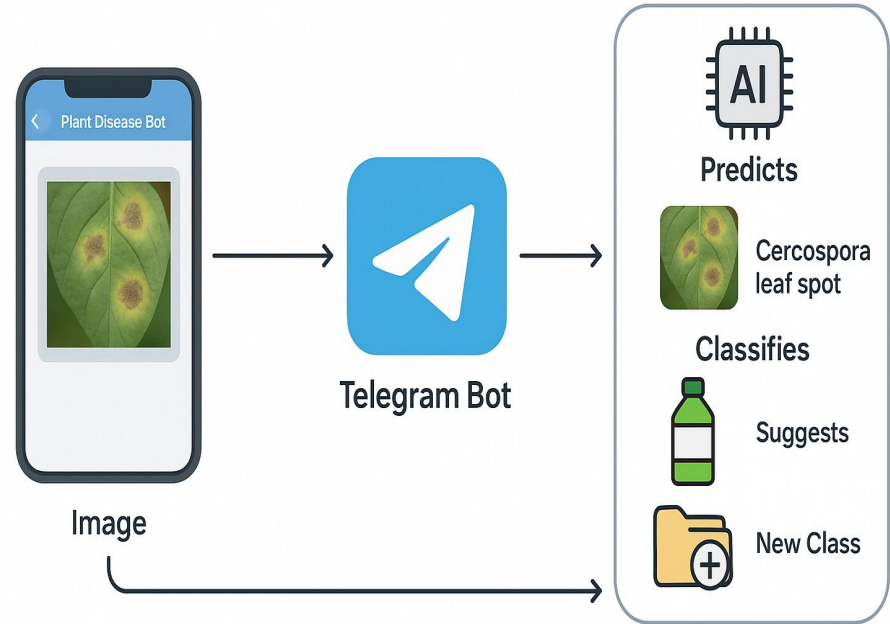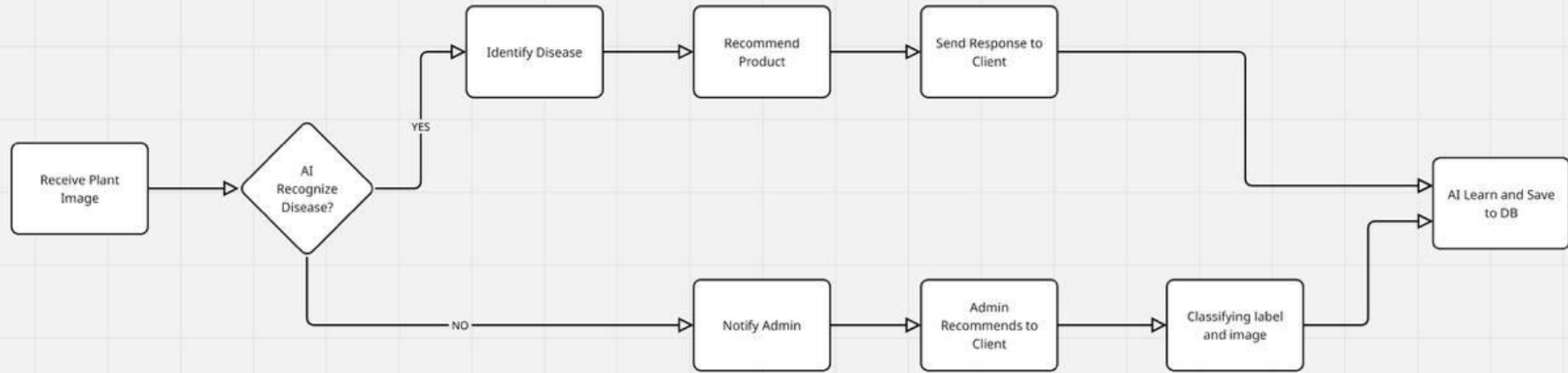# IFODA AI TELEGRAM BOT

Company name : "Ifoda Agro Chemistry Protection" LLC
Developer : Mukhriddin Khaydarov

Telegram bot integrated with AI

- Computer Vision model - identifies plant diseases , pests,weeds and lack of minerals ;
- Suggests our products (agrochemicals) against those problems

Technical task

Data collection

Dataset quality	Required data for each class	Actions needed
Minimum	1,000 images	Data augmentation + fine tuning
Average	2,000 images	Better to build a model
Ideal	5,000 images	Perfect for classification

The way we collect dataset

- Downloading public datasets (Kaggle , Roboflow etc.);
- Agronomists and farmers send images of plant diseases to the Telegram group ;
- 1 photographer who provides 1000 images per month.
- Checking and classifying the plant images with the help of specialists ;

Things I have done

- Collecting images for dataset from groups :

  - Currently we have collected over 2,500 annotated images for 108 classes ;

  - About 2,000 unlabeled images;

  - Over 16kh images from Public datasets.

- Built a prototype of AI model using a dataset of 5 classes overall 7,500 annotated images , 1,500 images for each class;
- Used pre-trained models(resnet18 , efficientnetB0) by fine-tuning them ;
- Senior involvement for code review

About model architecture

- For classification ResNet18 , EfficientNet_B0 ;
- YoloV9 - for segmentation and object detection ;
- Technologies we use : Python 3.11 , Pytorch , OpenCV , Numpy
- Google Cloud VM for model training
- Upload model to AWS

Things we will do

- Collecting dataset for 100 diseases ;
- Training models(classification , object detection and segmentation) on Google Cloud ;
- Write a documentation ;
- Test locally and integrate with backend of Telegram bot ;
- Deploy it on Amazon server.