THE MACHINE LEARNING CANVAS

Designed for: Head of product | Designed by: Lyu Xinyu | Date: 25/01/2023 | Iteration: 1

PREDICTION TASK

- Build ML system to predict the yield with estimated time
- Ingest, process, and analyze meta data to make real-time decision
- Build ML system to learn different plant growth cycles

DECISIONS

- Estimated time gap with reality
- Customers' reflection for the app is 4+/5
- Data management system breakdown less than 3 times/year
- Decision can be made less than 10 seconds

VALUE PROPOSITION

- 24/7 monitor
- Easy to plant
- Remote control
- Auto-modify
- Customize planting

DATA COLLECTION

- Plants' information (1 time and update 1 time/quarter)
- User settings (Each time)
- Previous planting data (Everyday)
- external conditions (like sunlight, temperature, humidity) and other conditions like soil nutrition and moisture (Every 10 minutes)
- Weather monitor (Every hour)

DATA SOURCES

- Plants library
- Mobile
- Cloud
- Sensors
- Government dataset

IMPACT SIMULATION

- metrics such as accuracy, precision, recall, and F1-score
- MAE or RMSE to evaluate the performance of regression models
- model predicts that a certain type of plant will take longer to grow than it actually does takes low cost
- Performance monitor
- Not discriminate against any particular group of individuals or plants

MAKING PREDICTIONS

- Pre-trained model to make real-time predictions when new data available
- Schedule mode to process batch predictions when new plant data comes
- Data pre-processing, cleaning and feature engineering
- Data visualization and interpretation
- Local machine + cloud-based service

BUILDING MODELS

- feature engineering and feature selection to identify the most important factors that impact the growth of the plants.
- regression or a decision tree (predict the time required to grow a certain type of plant based on historical data
- clustering or anomaly detection, (identify patterns or unusual behavior in the data that could affect the growth of the plants)

FEATURES

- Environmental data
- Soil data
- Plant data
- User-provided data
- Historical data

MONITORING

- *Prediction accuracy: accuracy, precision, recall, and F1-score (estimated time gap is better than customers' expectation)*
- *User engagement: Customers don't change the settings frequently and they like to recommend it to others*
- *Financial impact: ROI*
- *Yield: estimated time is accurate to plan for harvest and the quality is better than the era didn't use this system*
- *A/B testing to evaluate different version*
- *Anomaly detection to detect and correct system's issue*

OWNML.CO

Ready for the next step?

Check out the ML Project Checklist!

Lead ML implementation with confidence with the CRISP—OWNML methodology (*Cross-Industry Standard Process to create your own Machine Learning system*) and its checklist. End-to-end ML projects are broken down into **9 phases of 4-5 tasks each**.

The checklist serves as a roadmap, listing in detail what you need to do, and in which order, so you can minimize risks and **make the most efficient use of your (and your team's) time**.

Learn more at **ownml.co/checklist**

Value Proposition Canvas

Designed for:	Designed by:	Date:	Version:
Head of product	Lyu Xinyu	25/01/2023	1.0

Product

Benefits

1. Easy to plant
2. Orderly plant
3. Fast to get start
4. Easy & Fully control

Experience

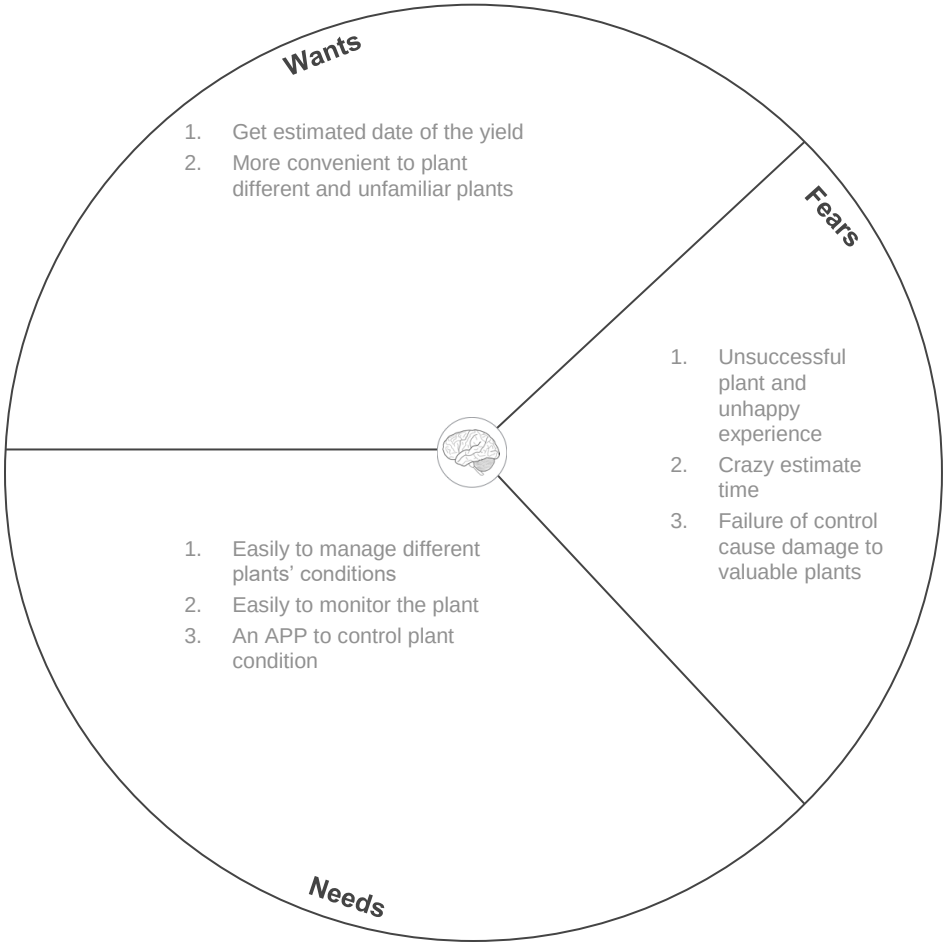
1. Sufficient knowledge to plant different kinds of plants
2. Modify the settings intelligently
3. Convenient and remote control

Features

1. Automatically change the settings to find the best condition
2. Predict the yield time and provide related plant information
3. Rich meta data:

- Real-time data about external condition
- Data about planting

Customer



Product	Ideal Customer
GrowBot	Vegetable and fruit producer

Substitutes

1. Self-learning to know different kinds of plants' planting condition at certain circumstance to improve the quality of planting and increase the success rate