

**BLOSSOMING  
POSSIBILITIES  
ONE  
HEART  
BEAT AT  
A TIME**

**GROUP 3  
PHYSICS 173 LAB**



# Problems in Philippine Agriculture



**Weak Sustenance  
and Growth of Local  
Agricultural Output**



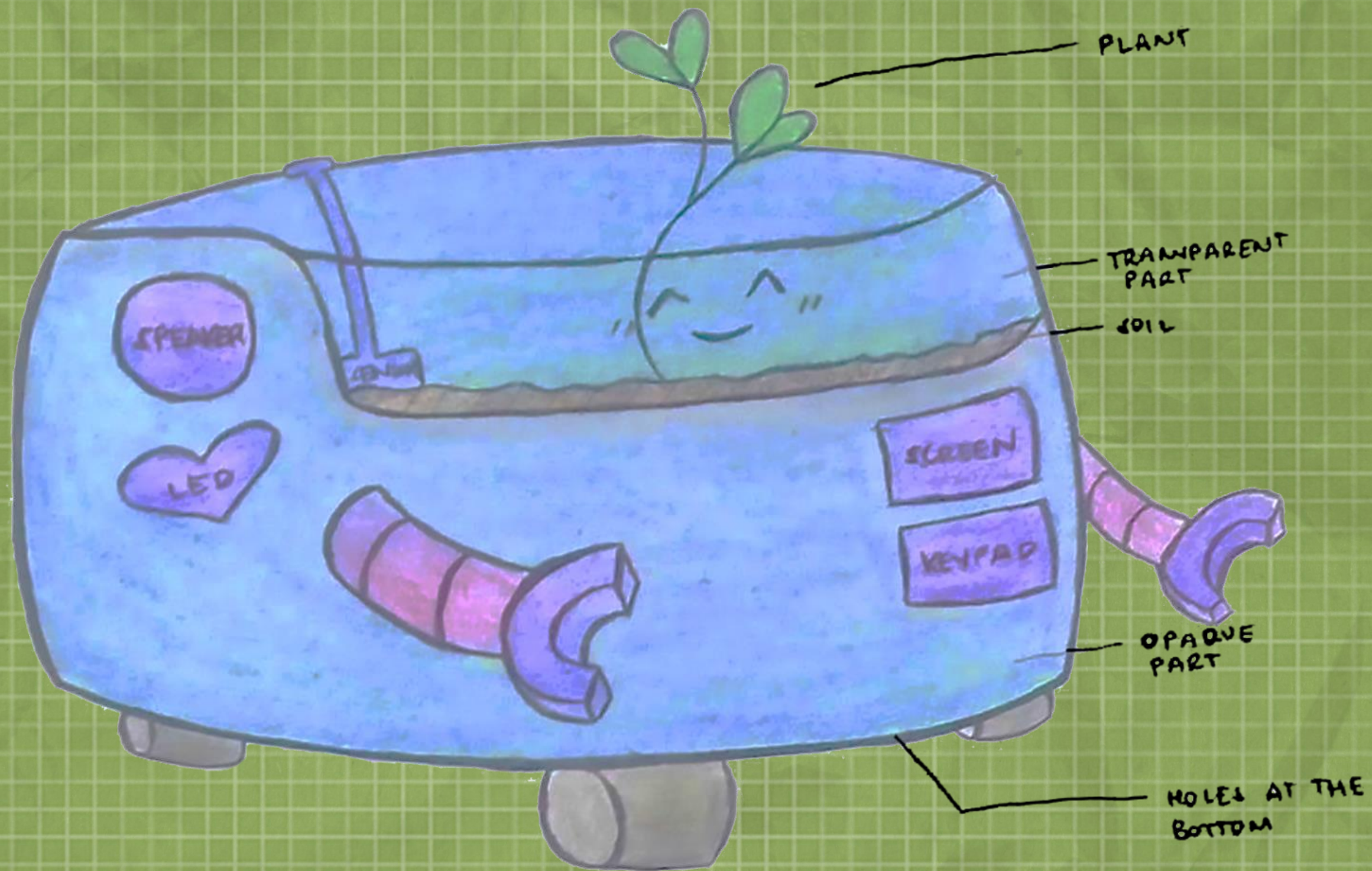
**Recent Problems in  
Crop Supplies and  
Mass Importation**



**Few Investments on  
Food Security and  
Innovation**







# Product Design





# Market Analysis

**Currently, there are 5 million farmers that cultivate 9.7 million hectares or about 30% of the land in the Philippines. By offering our services to them, it will generate us a huge amount of revenue.**





## **PLANNING PHASE: OCTOBER 2023**

**Brainstorming of Project HEART and its components using Arduino.**

## **SIMULATION PHASE: NOVEMBER 2023**

**Simulation of Arduino components of Project HEART via Wokwi.**

## **BUILD PHASE: NOVEMBER 2023**

**Building of Project HEART along with Arduino components.**

# **Project Roadmap**





# **Product Video: Nurturing Our Green Tomorrow**

**Product showcase video of Project HEART**

**To be updated...**





# PROFILES



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**FOR QUESTIONS  
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# References

1. Barry, Jamie. "Everything You Need to Know About Protoboards." Cool Components, 1 July 2021, <https://coolcomponents.co.uk/blogs/news/everything-you-need-to-know-about-protoboards>.
2. Braza, Jenn. "How Resistors Work." Circuit Basics, 13 May 2020, <https://www.circuitbasics.com/what-is-a-resistor/>.
3. Dejan. "Ultrasonic Sensor HC-SR04 and Arduino – Complete Guide." How To Mechatronics, 2 Feb. 2022, <https://howtomechatronics.com/tutorials/arduino/ultrasonic-sensor-hc-sr04/>.
4. "DHT11–Temperature and Humidity Sensor." Components101, <https://components101.com/sensors/dht11-temperature-sensor>. Accessed 1 Nov. 2023.
5. "How to Make an Anemometer: 7 Steps (with Pictures)." wikiHow, <https://www.wikihow.com/Make-an-Anemometer>. Accessed 1 Nov. 2023.
6. Khan, Hamza. "Arduino Water Level Sensor." Datasheet Hub, 21 June 2023, <https://www.datasheethub.com/arduino-water-level-sensor/>.
7. Lab, Microcontrollers. "MB102 Breadboard Power Supply Module – How to Use It." Microcontrollers Lab, 15 Feb. 2021, <https://microcontrollerslab.com/mb102-breadboard-power-supply-module-pinout-and-how-to-use-it/>.
8. Makerspaces.com. "How To Solder: A Complete Beginners Guide." Makerspaces.Com, 11 Apr. 2017, <https://www.makerspaces.com/how-to-solder/>.





# References

9. "Micro SD Card Adapter Module." Components101, <https://components101.com/modules/micro-sd-card-module-pinout-features-datasheet-alternatives>. Accessed 1 Nov. 2023.
10. "Philippines: Land Area Used for Agricultural Crop Cultivation 2022." Statista, <https://www.statista.com/statistics/1045556/land-area-used-for-agricultural-crop-cultivation-philippines/>. Accessed 1 Nov. 2023.
11. seotechwriter. "What Are Jumper Wires: Colour, Types and Uses." Wiltronics, 14 Apr. 2022, <https://www.wiltronics.com.au/wiltronics-knowledge-base/what-are-jumper-wires/>.
12. "Soil Moisture Sensor Module." Components101, <https://components101.com/modules/soil-moisture-sensor-module>. Accessed 1 Nov. 2023.
13. "Sprout." Brawl Stars Wiki, <https://brawlstars.fandom.com/wiki/Sprout>. Accessed 1 Nov. 2023.
14. What Is an Arduino Uno R3 Board? – Hand Tools for Fun. 11 Nov. 2020, <https://handtoolsforfun.com/what-is-an-arduino-uno-r3-board/>.
15. What Is an SD Card? <https://www.computerhope.com/jargon/s/sdcard.htm>. Accessed 1 Nov. 2023.
16. "World Bank Open Data." World Bank Open Data, <https://data.worldbank.org>. Accessed 1 Nov. 2023.

