



Welcome to

Crop Health Monitoring

Remote Sensing Agriculture

Problem Domain



- **Space Limitations** in Urban Cities
- **Excessive Water Usage** for Planting
- Large Amount of **fertilizer Usage**
- **Climate Change** Impact on crops
- **Weeds and Pests** Management



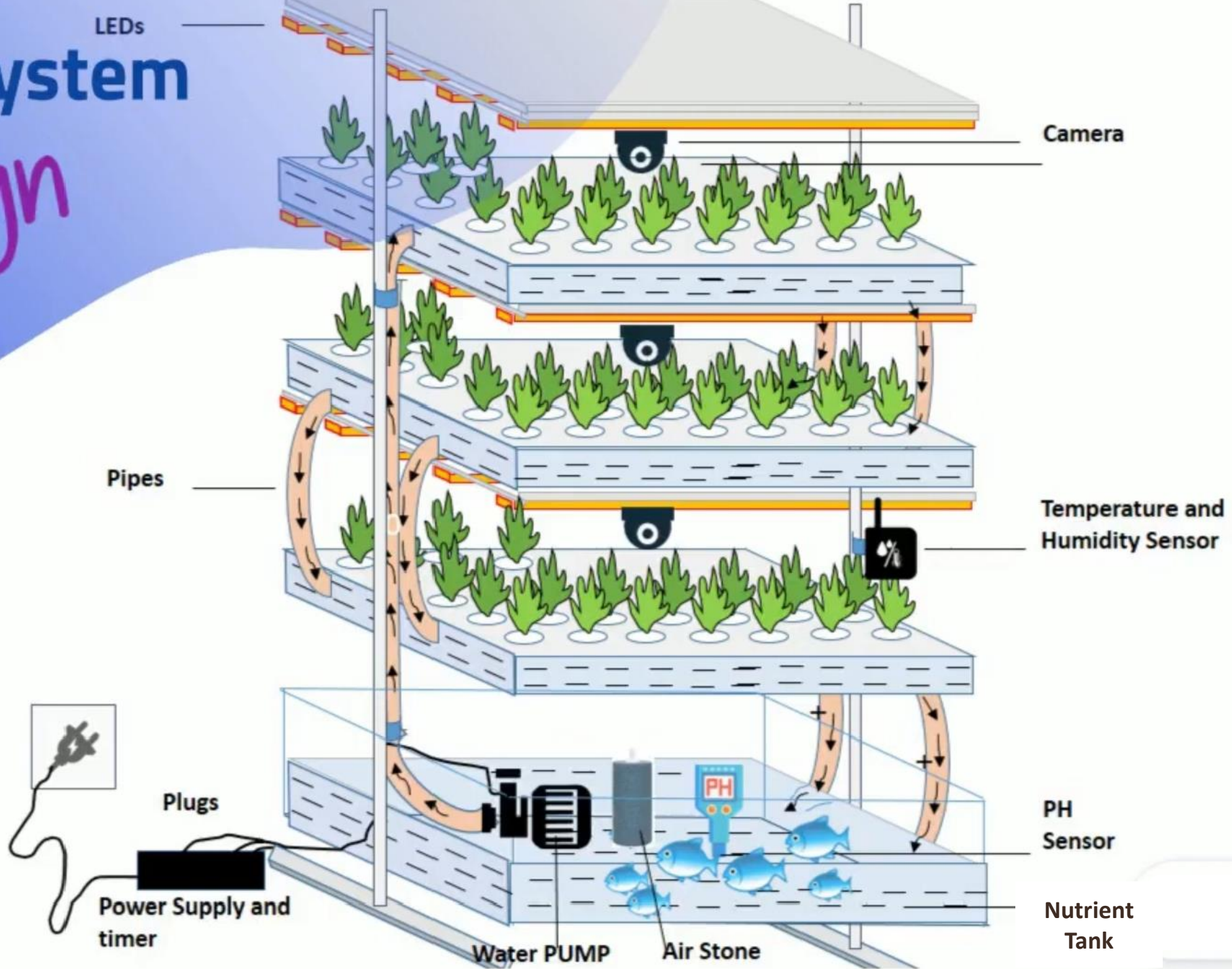
A decorative plant with a thin black stem and several leaves. The leaves are purple and pink, with some having a gradient. The plant is positioned on the left side of the slide.

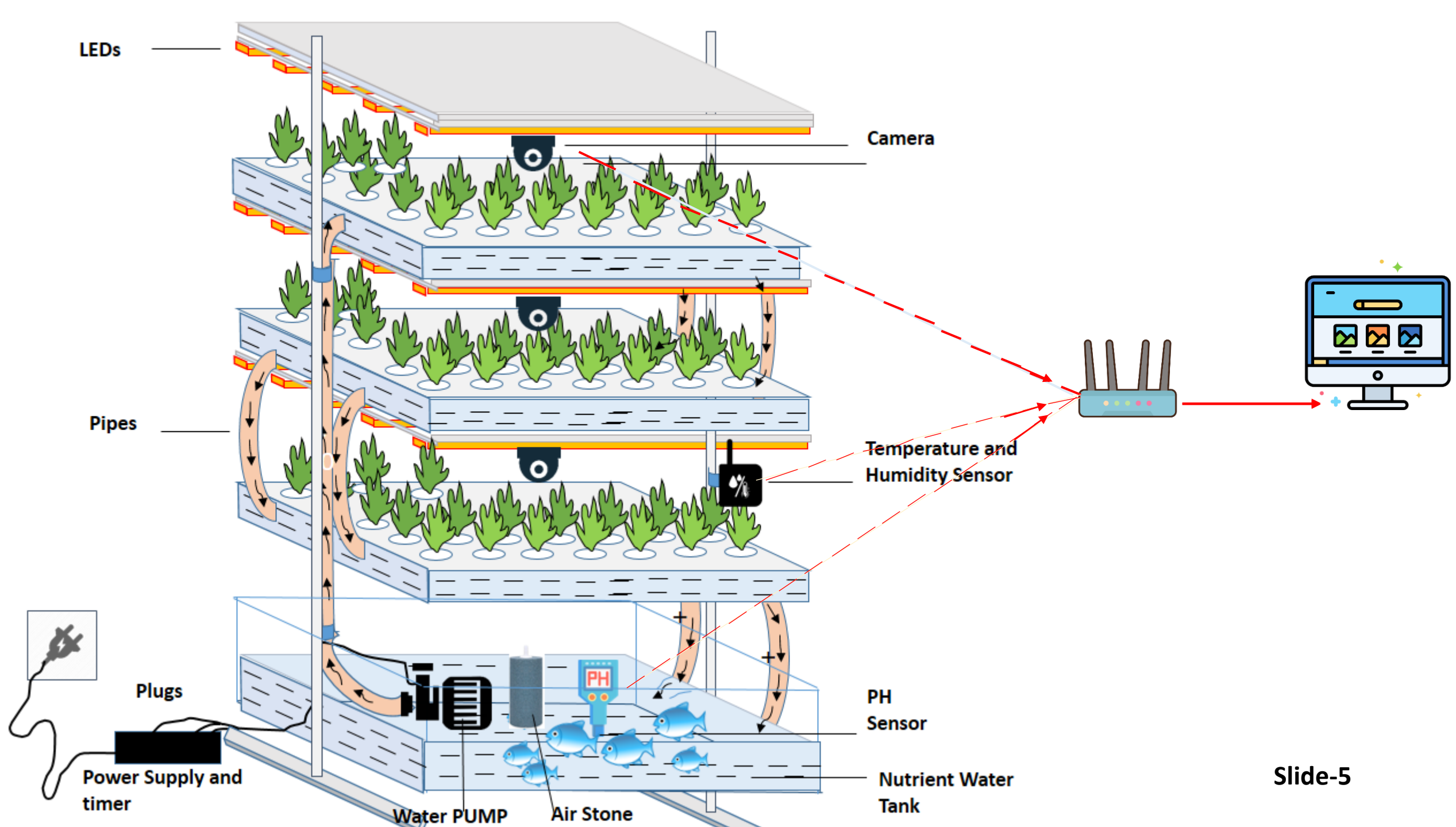
So, I *propose*:

Crop Health Monitoring - Remote
Sensing Agriculture

- Vertical
- Hydroponic
- Sustainable
- Automation

System Design

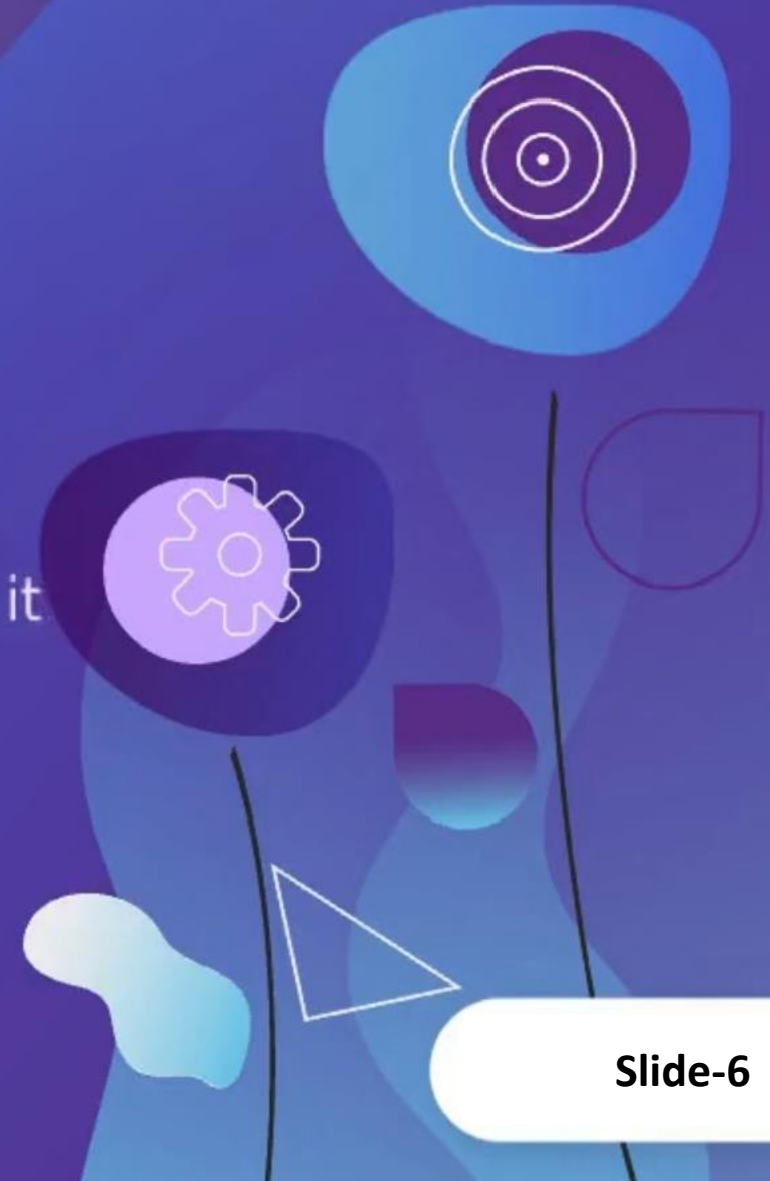




Crop Health Monitoring - Remote Sensing Agriculture

Outcome:

- ◆ Identify crop and weed seedlings
- ◆ Identify the nutrition need of a plant and provide it in realtime





Vertical Hydroponic Farming System

- ✿ A smart vertical farming system that allows users to maintain crops at any time and from anywhere.
- ✿ Growing plants in hydroponics require less space, less water, and pests and diseases are more easily controlled and prevented.
- ✿ Because of the result of fish farming , a high level of bio-security can be maintained by reusing treated water.
- ✿ We can grow leafy vegetables, such as herb, celery, cabbage, lettuce, mustard, basil, cucumbers, tomatoes, potatoes, strawberry etc.

How The Camera Will Work

- Monitor crop health
- Identify the crops
- Identify weed seedlings and notify the users
- Identify the physical damage of a plant and inform users exactly where fertilizer is needed



How LED Light will work

The Lights will provide the plant with the largest source of light to ensure that plants grow quickly and healthy whatever the weather is.



Slide-9

How Water Pump will work

Time-able Circulatory System: The timer allows the pump to work for 5 minutes every 30 minutes. Not only make the pump more durable and save nutrient solution, but also make the vegetables grow better.



How PH Sensor will work

- ✿ It is used for measuring the PH plant tissue to determine plant health. Our PH control maximizes the efficiency of fertilizers by controlling nutrient bioavailability. It is available for measuring Conductivity, Calcium, Nitrate, Potassium, Sodium, Salt concentration and PH measurement
- ✿ If the PH value is more than 0.5 away from the optimal 6.4 value, we can adjust as follows: If the PH is > 0.5 higher than (6.4) : add small amount of phosphate fertilizer. If the PH is > 0.5 lower than (6.4) : add small amount of calcium / potassium fertilizer .

How Temperature and Humidity Sensor will work

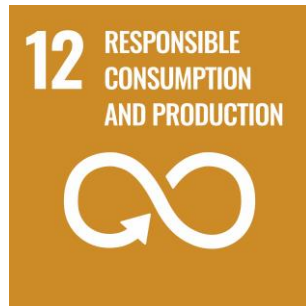
It is used for monitoring heat and humidity. The device is intended to notify the user when the moisture content drops below a certain value.

Benefits and Result

- Space saving
- Sustainable (Water Saving)
- Minimizing environmental impacts caused by excess applied water and subsequent agrichemical leaching
- Productive (including plants and fish)
- Keeping pests out
- Weeds are easily dealt with and can be removed easily since their roots are suspended in water
- The water substrate in hydroponics can easily and quickly distribute nutrients uniformly throughout to all plants in the system.
- Weatherproof system



My project “**Crop Health Monitoring: Remote Sensing Agriculture**” can support these three “**Sustainable Development Goals**”



My project can significantly contribute to our country, **Myanmar**, which heavily relies on **agriculture**. Contributing this project to Myanmar can have significant **positive impacts** on the country’s agriculture sector, leading to “**increased productivity**” , “**sustainable farming**” practices, and improved livelihoods for **farmers in our country**.



Thank You

For Your Attention