Intelligent-Control System for Agricultural Production under a Greenhouse (I-CAP)

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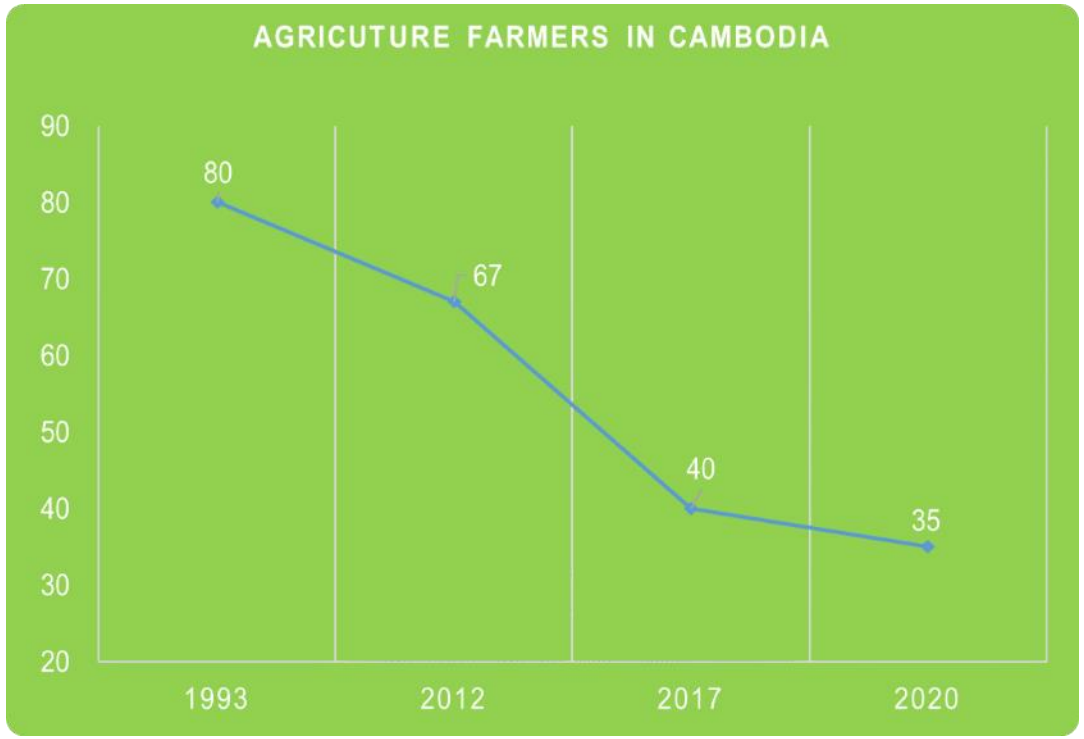

Declining of employment means to poorly agriculture-production

Safe solution to fulfill GAP

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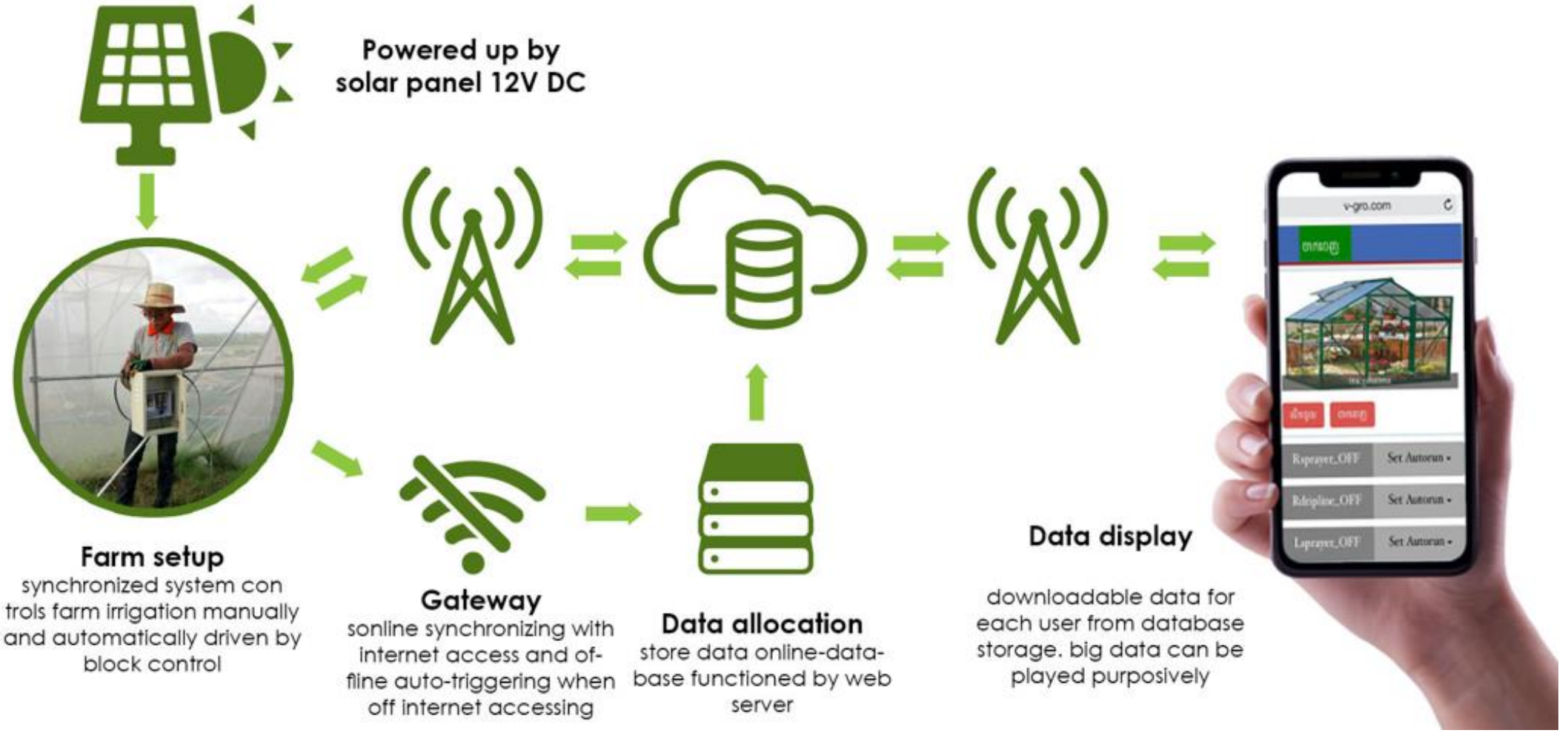
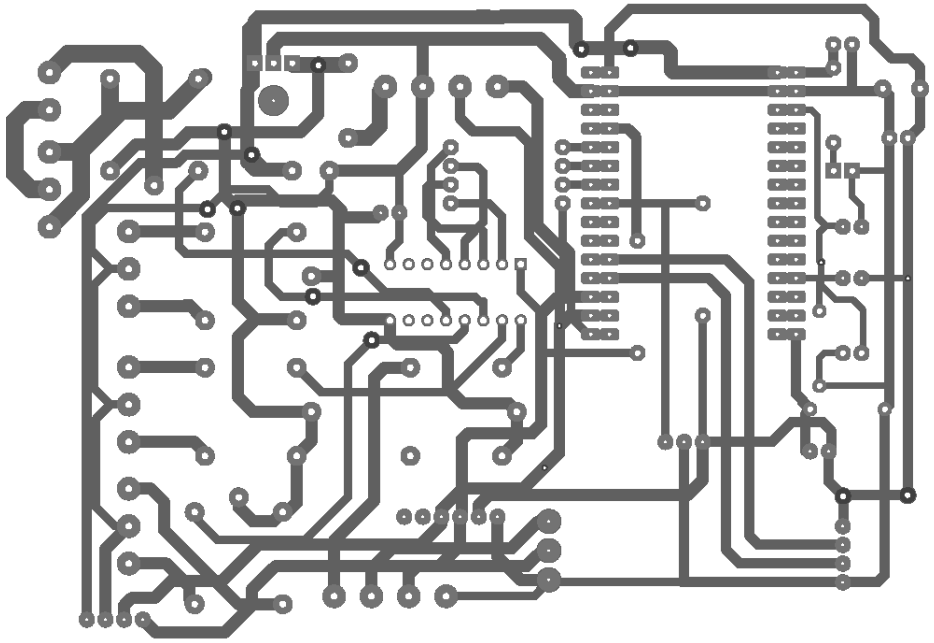
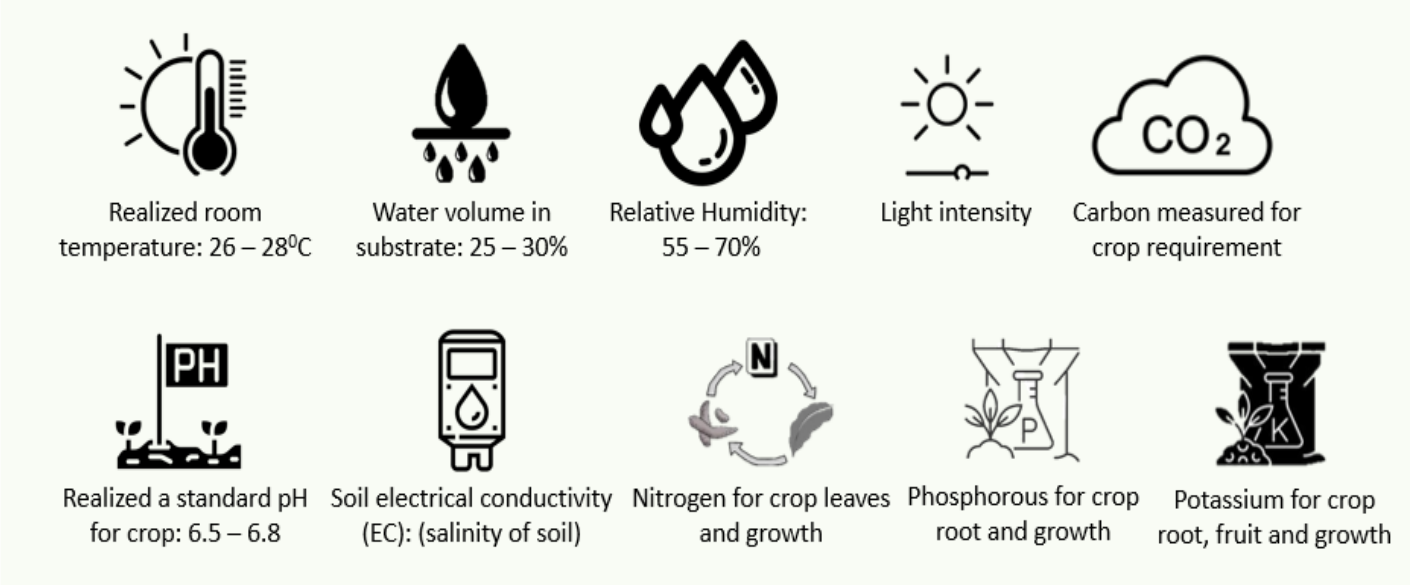


Process walkway

Intelligent-Control System for Agricultural Production under a Greenhouse (I-CAP)

Schematic for “I-CAP solution”

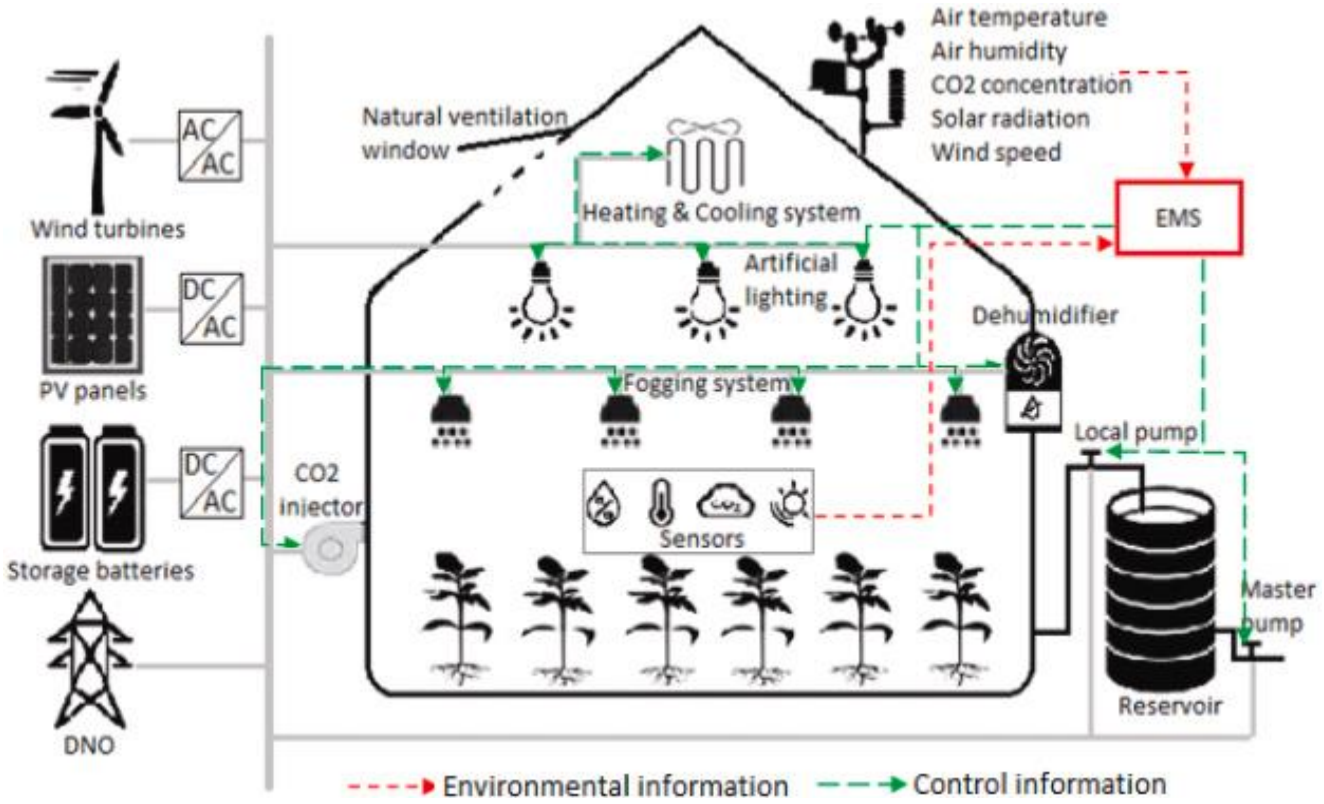




Local-designed control system for crop irrigation and fertigation

A wide range of ground data detection

Proposed Methods (***greenhouse***, *website [apps], control system*)

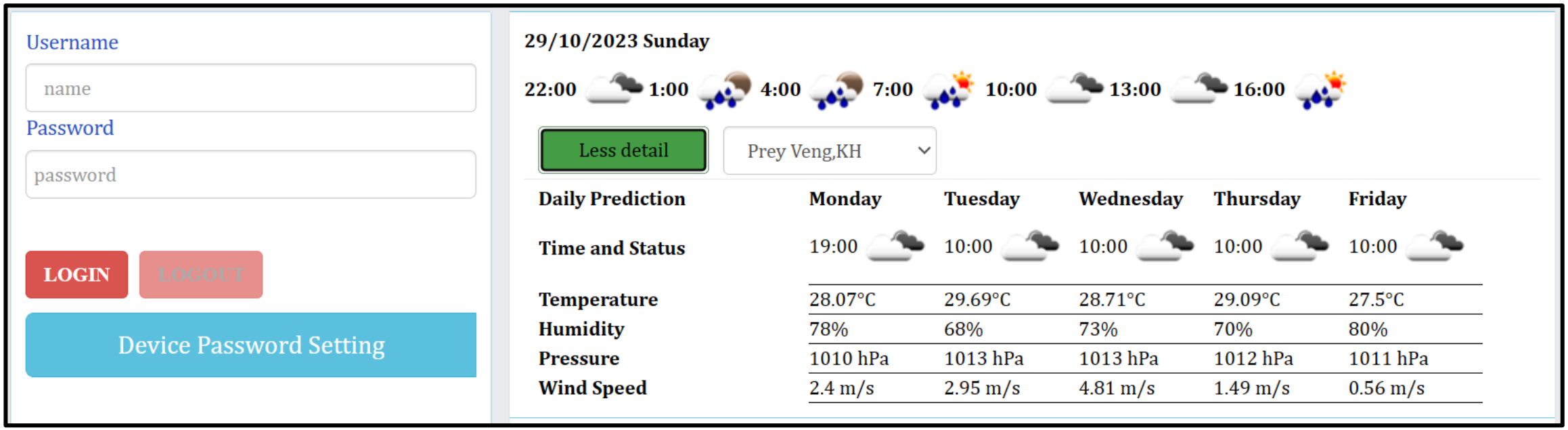


Sample: Intelligent Greenhouse Constructed equipped with sensors: temperature, humidity, light intensity, CO_2, soil-water volume, pH, EC, NPK and control irrigation and fertigation

Variety of crop production produced under a greenhouse.

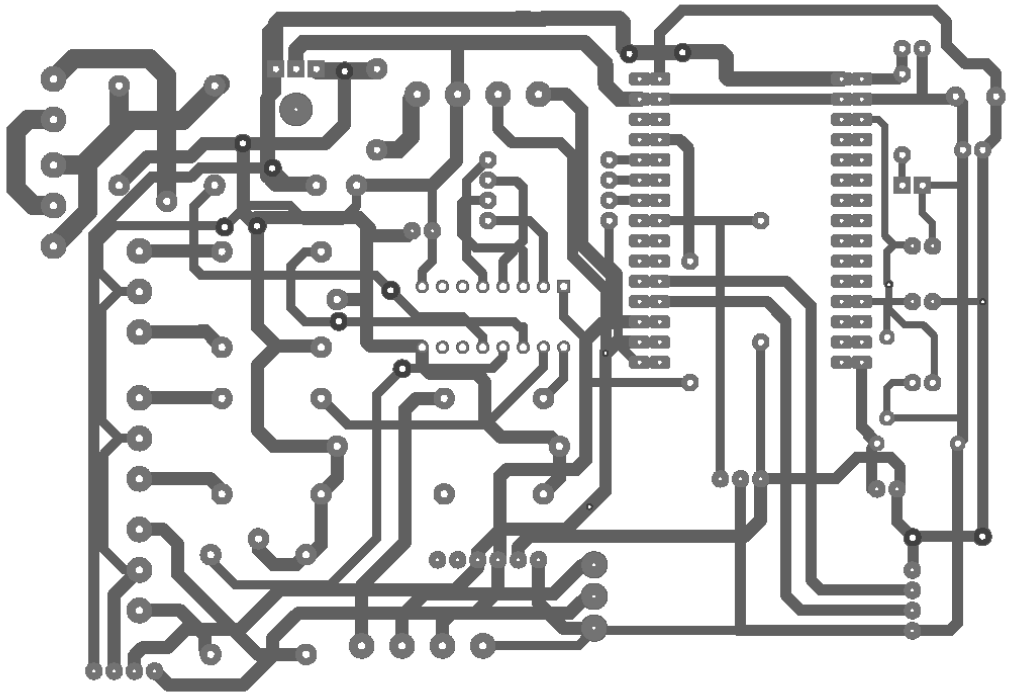
- A smart greenhouse to be constructed
- An array of sensors to be installed
- Irrigation and Fertigation systems to be established
- Temperature and Humidity to be controlled inside the greenhouse
- Clean energy to be installed to power the greenhouse

Proposed Methods (*greenhouse, **website [apps]**, control system*)



- **Website [apps]** controls multiple users
- **Control** via Smartphone/Computer
- **Functions**: manual and automate controls irrigation and fertigation based on detected ground information and/or requirement
- **Fertilizer** calculates based on retrieved data ratios (nitrogen, phosphorous, potassium) and suggest amount to automatically fertigate
- **Water volume** calculates based on retrieved data from the ground and suggest amount to automatically irrigate

Proposed Methods (*greenhouse, website [apps], **control system***)

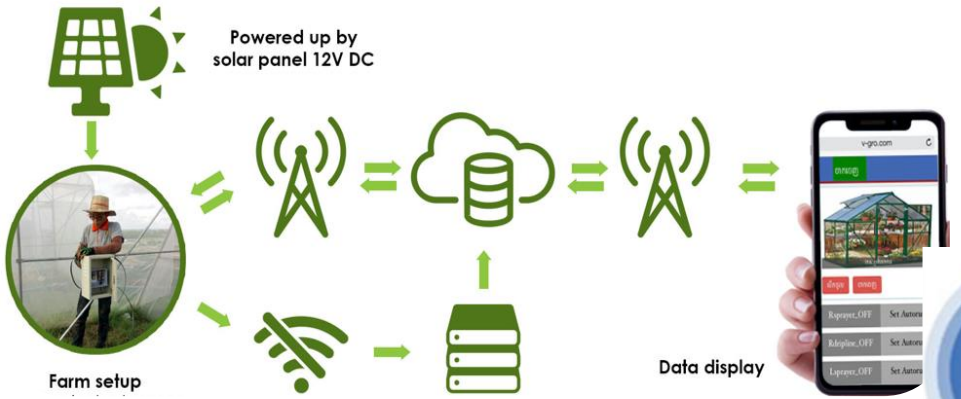


Schematic for "I-CAP solution"

Implementation and Replication: *the method to be implemented directly in the greenhouse and extended to farmers at the rural areas under greenhouses.*

- **Board** can be designed locally
- Except sensors spare-parts: can be available locally
- Design needed electric engineering who is accessibly available in the local.
- **Programming languages**:

Impact: (Scientific and technological)



- *Collecting ground data*
- *One-click operation*
- *Economic Efficiency*
- *Market product driven*

Ground data

- Detect ground information
- Display data
- Record data
- Analyze and recommend for automated production and/or visible farm requirement

One-click Operation

- Manually/Automatically operation – irrigation and fertigation
- Offline/Online control
- Computer/Smartphone

Economic Efficiency

- Reduce water by at least 50%
- Reduce fertilizer by at least 30%
- Reduce labor(time) by at least 50%
- Reduce chemical pesticide by at least 50%

Market Product-driven

Impact: (Society)

Time required:

- Irrigation & fertigation
- Control soil
- Diseases and pests
- Weeding

High technologies with hand-on experiences

Relative hard without skillset

Hybrid technology handling

Impact: (Collaborative)

Co-funded by the European Union

Asi@Connect

TEIN COOPERATION CENTER

(EU) – (Asi@Connect) – (Organization)

ITALab

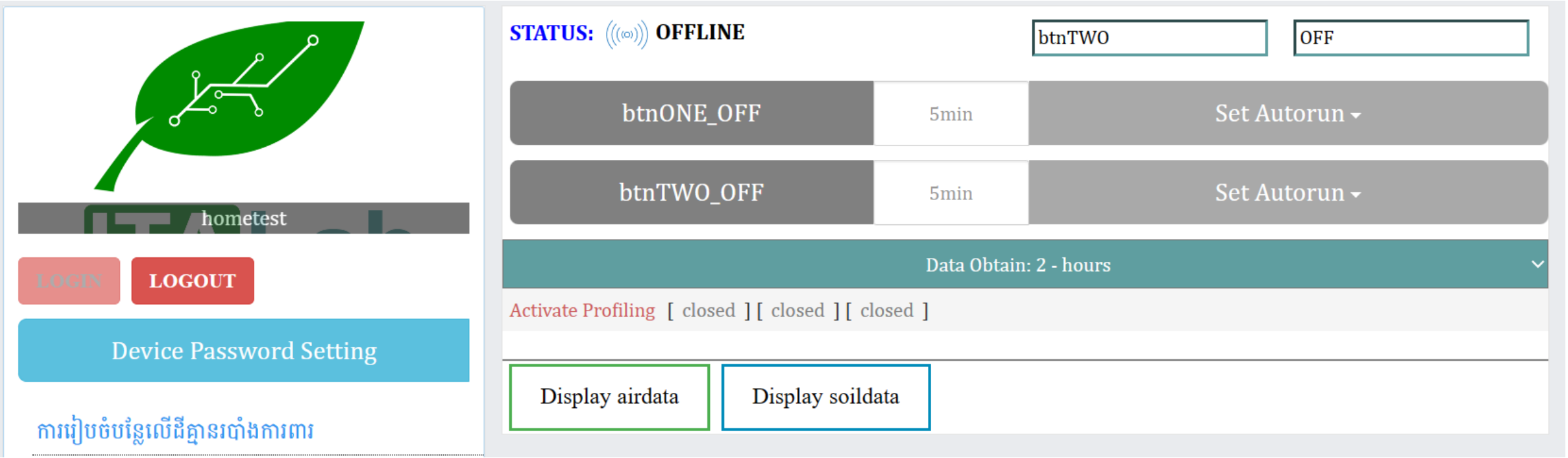
KHMER MODERN FARMING

GREEN CLUSTER

Public Institution

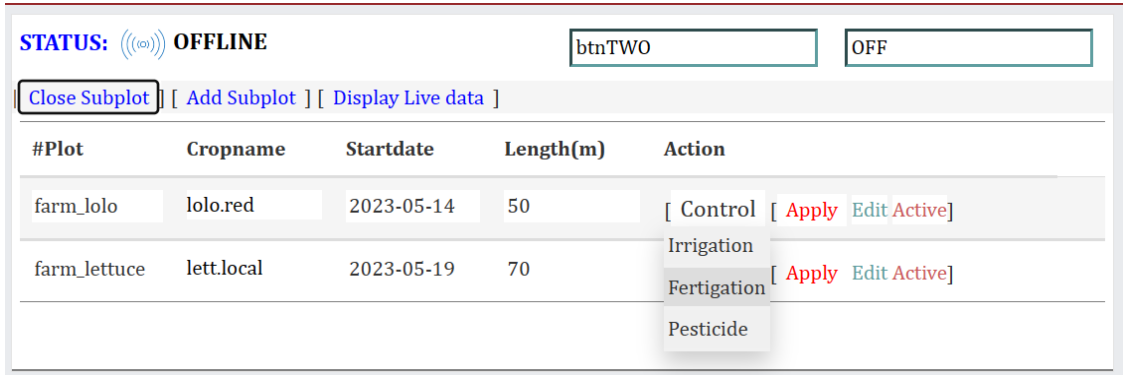
HEKS EPER Bread for all.

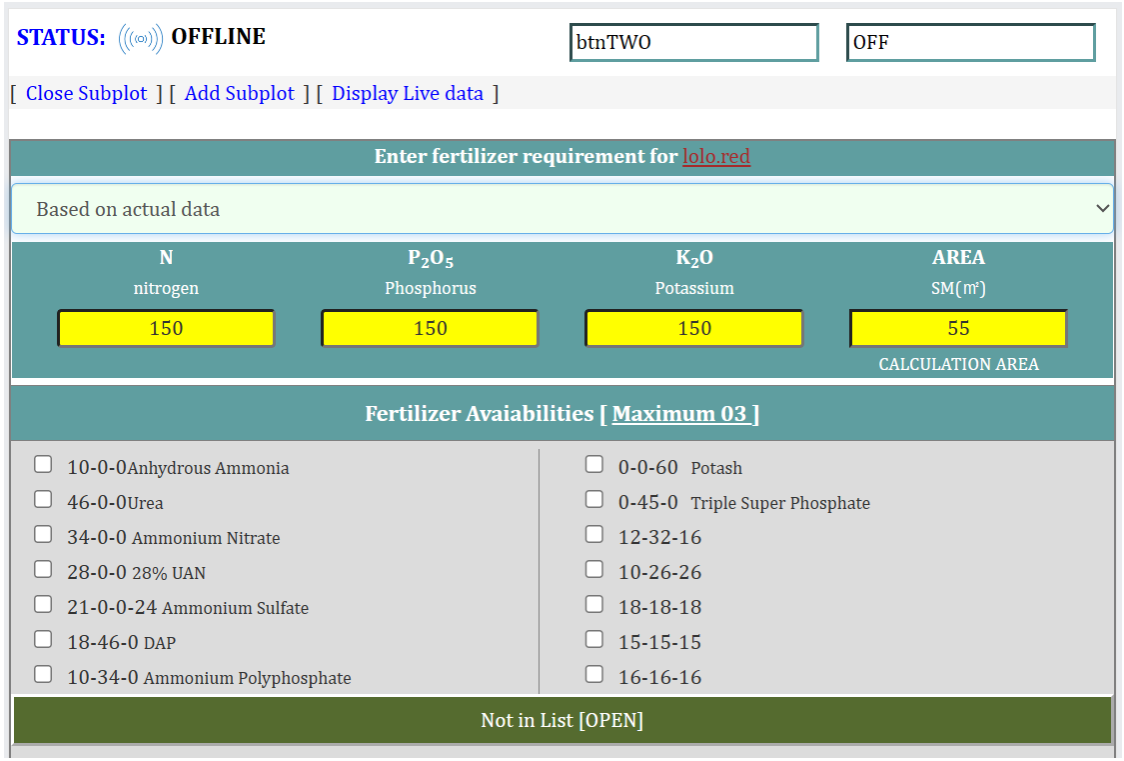
Output/Outcome:



Fertigation and irrigation tracking systems

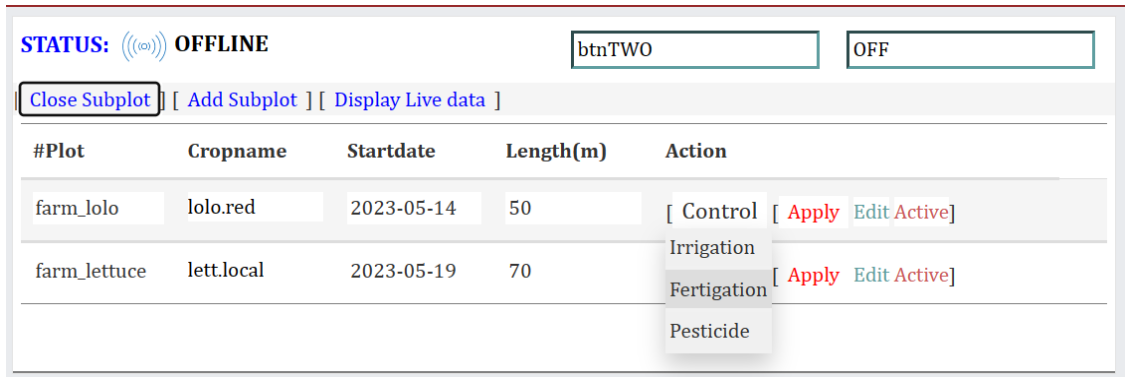
Output/Outcome

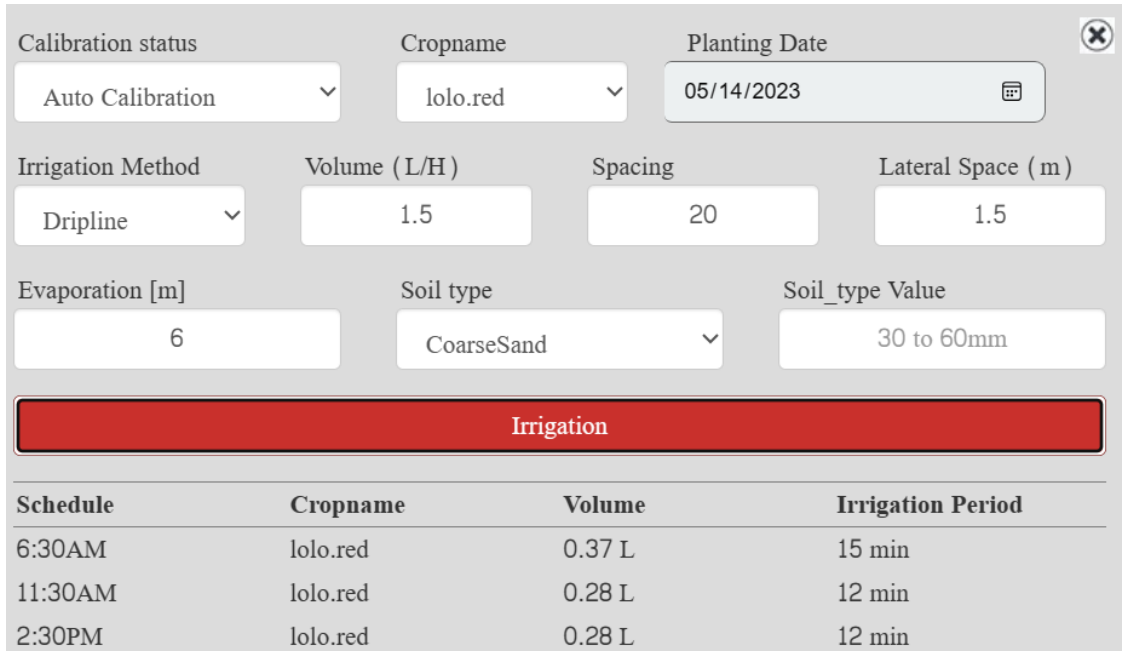


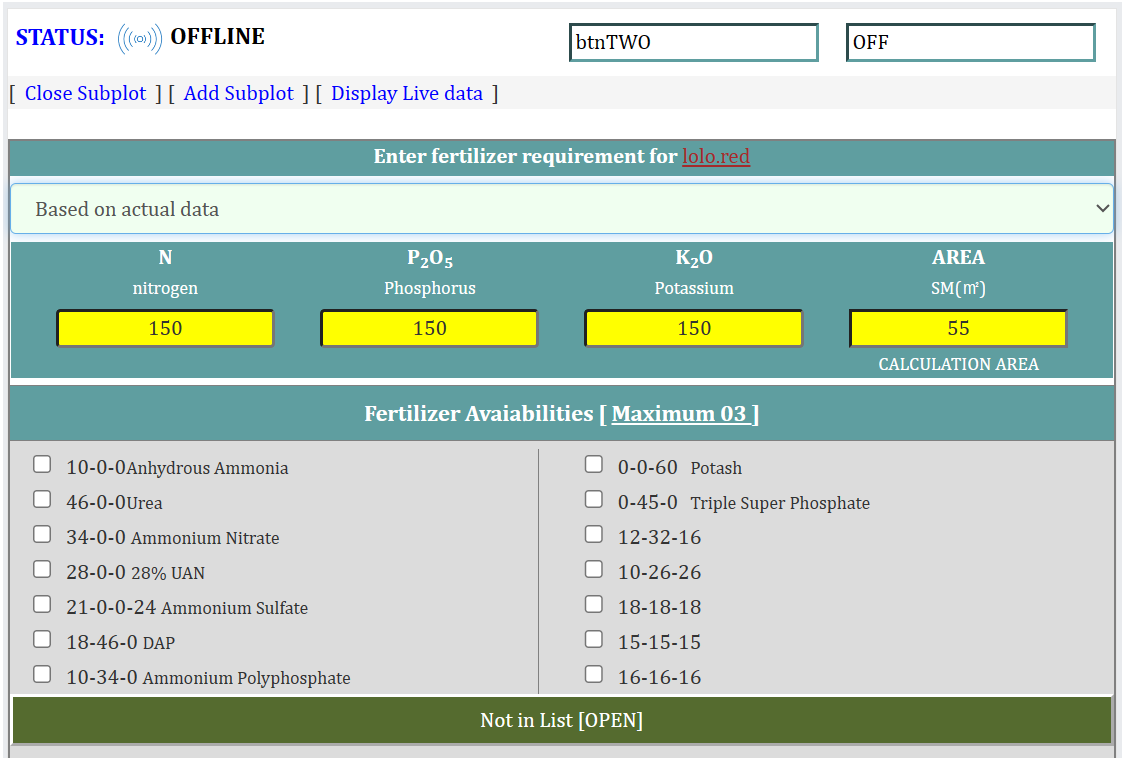


Fertigation and irrigation tracking systems

Output/Outcome

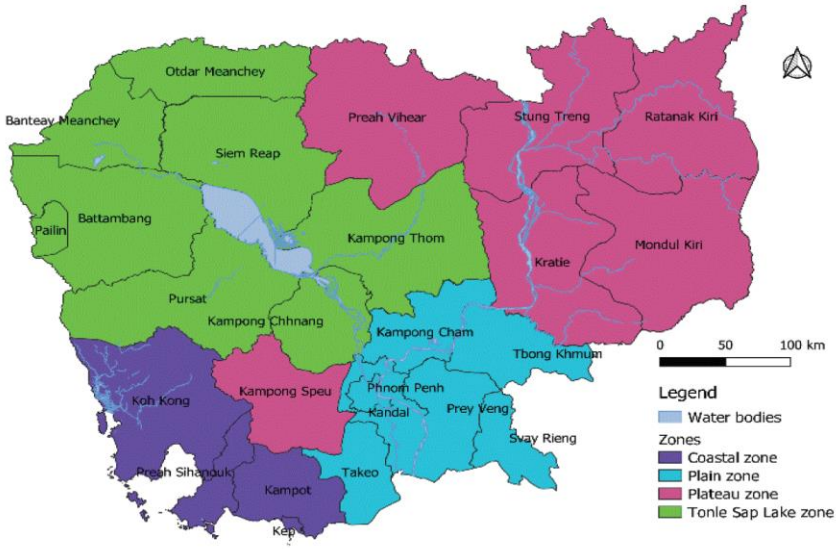






Fertigation and irrigation tracking systems

Conclusion



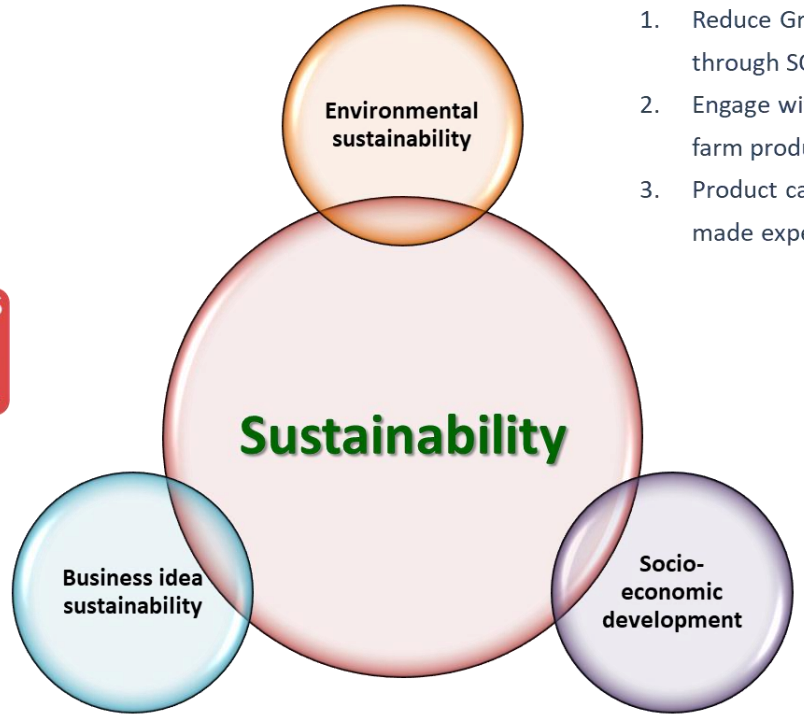
Targeted: all over the country, having greenhouse production, and it is getting booming

Connect to wholesalers/ Retailers

Subscription Fee

If we have 6,000 subscribers

18,000 USD/Month



1. Reduce Greenhouse Gases Emission through SOLAR POWERING;
2. Engage with green growing through farm production;
3. Product can be REUSE through local made expert.

ONE CLICK TRIGGERING

1. Gain time for extra work
2. Save water up to 70%
3. Save money up to 6 times to conventional practice
4. BE AS GOOD AS FARMER ASSISTANCE—women, youth, marginalized groups
5. Financial agreement

SUSTAINABILITY