



Estd : 1984

Kongu Engineering College Perundurai, Erode.

S&H BLOCK

IDEATHON 2K25

[AI-Powered Smart Microfarm Hub]

-Hardware

Project by

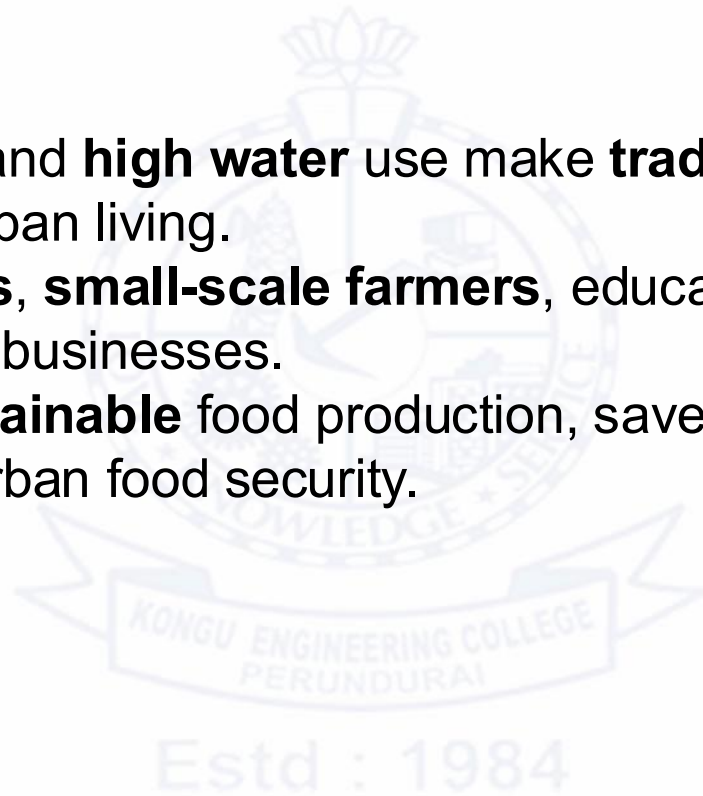
1. 25ITR113 – RISHYANTH M P
2. 25CDR085 – SANJAI K
3. 25CDR087 – SANJAY KUMAR U
4. 25CDR095 – SHATHANAN S



CERT No.: 99 -100 -20788
ISO 9001 : 2015

Problem Statement

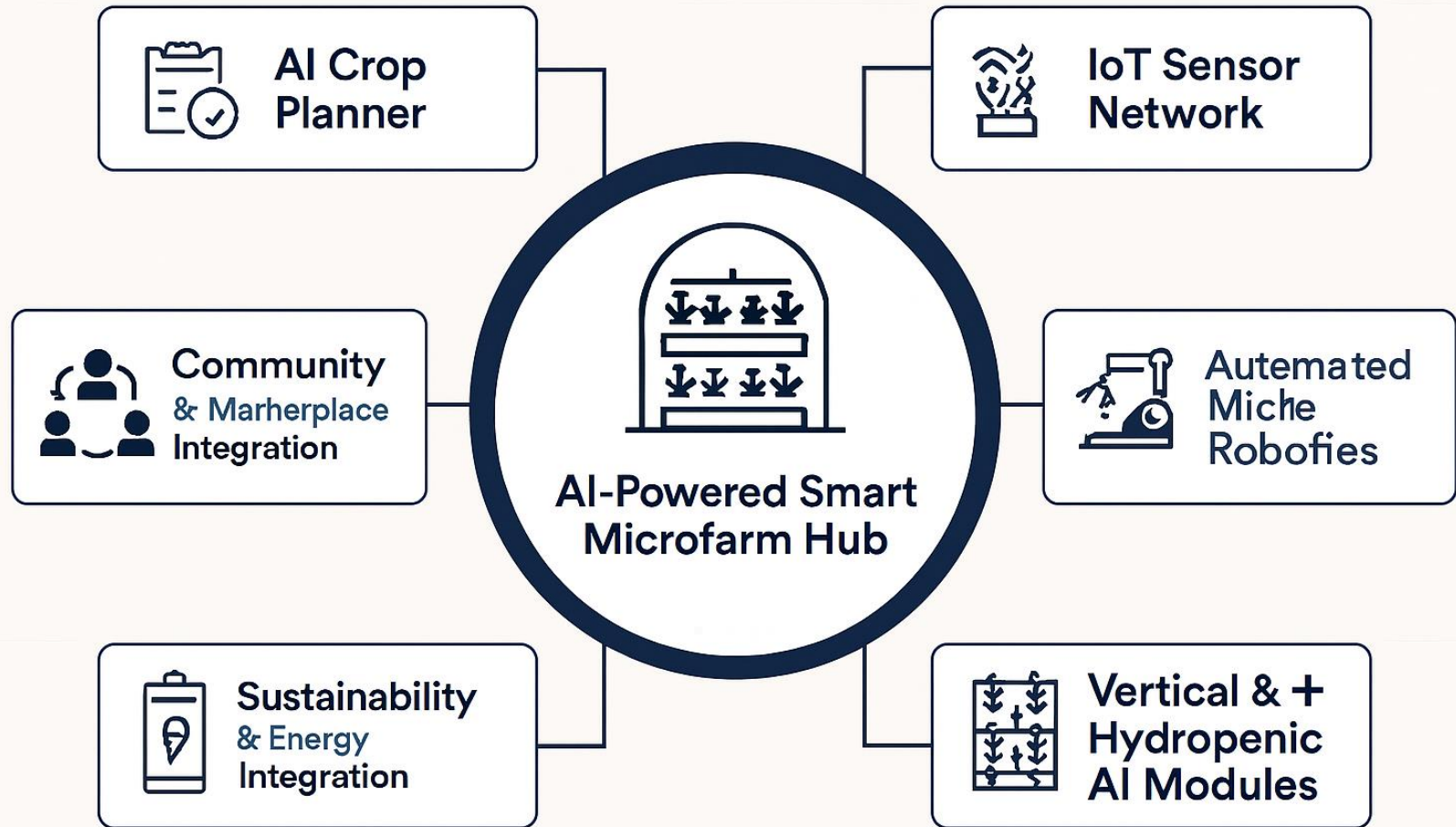
- **Limited space** and **high water** use make **traditional farming** unsuitable for urban living.
- **Urban residents, small-scale farmers**, educational institutions, and eco-friendly businesses.
- It promotes **sustainable** food production, saves space and water, and **supports** urban food security.



Proposed Solution

- A compact, tech-enabled microfarm that uses **AI-powered** to **maximize yield**, sustainability, and efficiency in small urban spaces
- By leveraging AI for **soil monitoring**, **pest control**, and crop planning, it ensures high-quality local produce with minimal space and labor.
- It uniquely combines **AI, IoT, robotics, and vertical/hydroponic farming** in a compact urban setup for self-optimizing, high-yield, and sustainable micro-farming.

Block Diagram



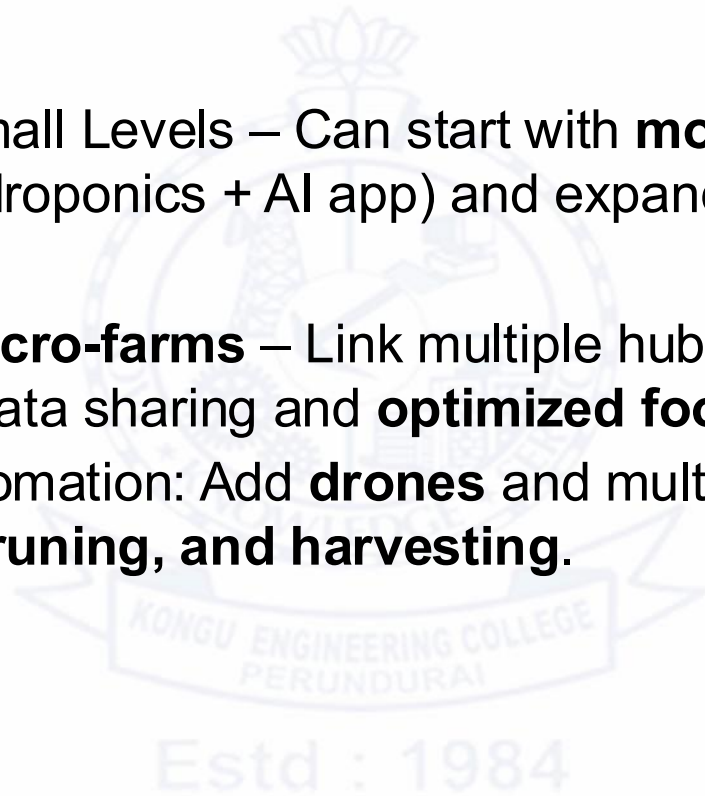
Impact & Benefits

- Empowering communities with **fresh food**, **reducing environmental footprint**, and advancing smart farming through AI-driven innovation.
- Higher crop yields with **lower resource use**, improved food accessibility, and smarter, **low-maintenance** urban farming.



Feasibility & Future Scope

- Scalable at Small Levels – Can start with **modular units** (sensors + hydroponics + AI app) and expand gradually.
- **Networked Micro-farms** – Link multiple hubs into a citywide grid for collective data sharing and **optimized food distribution**.
- Advanced Automation: Add **drones** and multi-tasking robots for **pollination, pruning, and harvesting**.



References

- C. Kaiser, **“Maximize Productivity with Sustainable Micro Farming**<https://www.landapp.com/post/what-is-micro-farming>.
- A. Awais, **“A Guide to Profitable Micro-Farming: Think Small, Do Big,”** <https://medium.com/@ahmadawais098/a-guide-to-profitable-micro-farming-think-small-do-big-970f2d5846ae>
- *Soler Solutions*, **“What is micro farming and how does it benefit the planet?”**,<https://solersolutions.com/what-is-micro-farming-and-how-does-it-benefit-the-planet/>

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