



Estd : 1984

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S&H BLOCK

IDEATHON 2K25

[AI-Powered Smart
Microfarm Hub]
-Hardware

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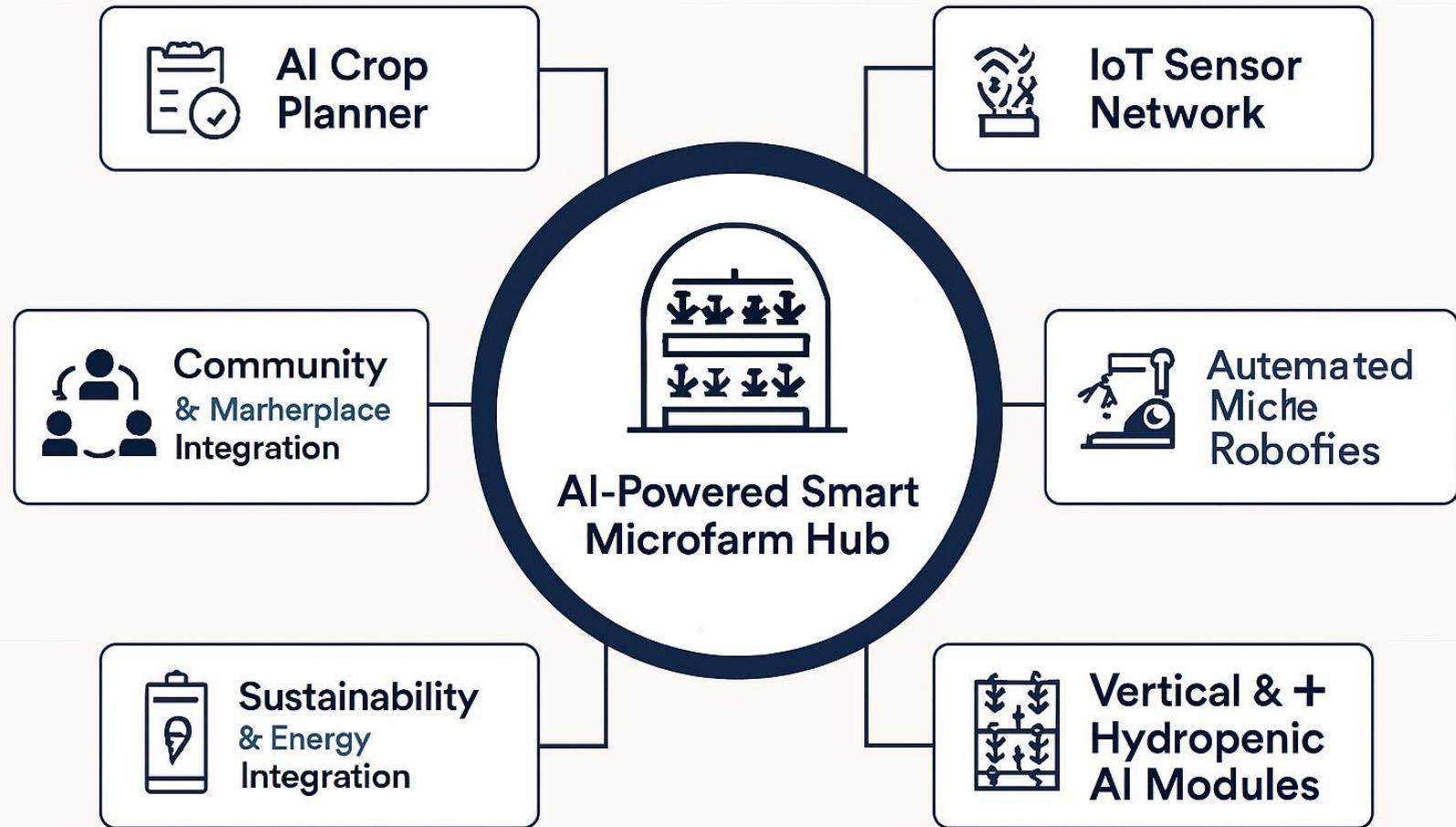
Problem Statement

- **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/>

THANK
YOU

