

The smart cultivator with LED artificial light



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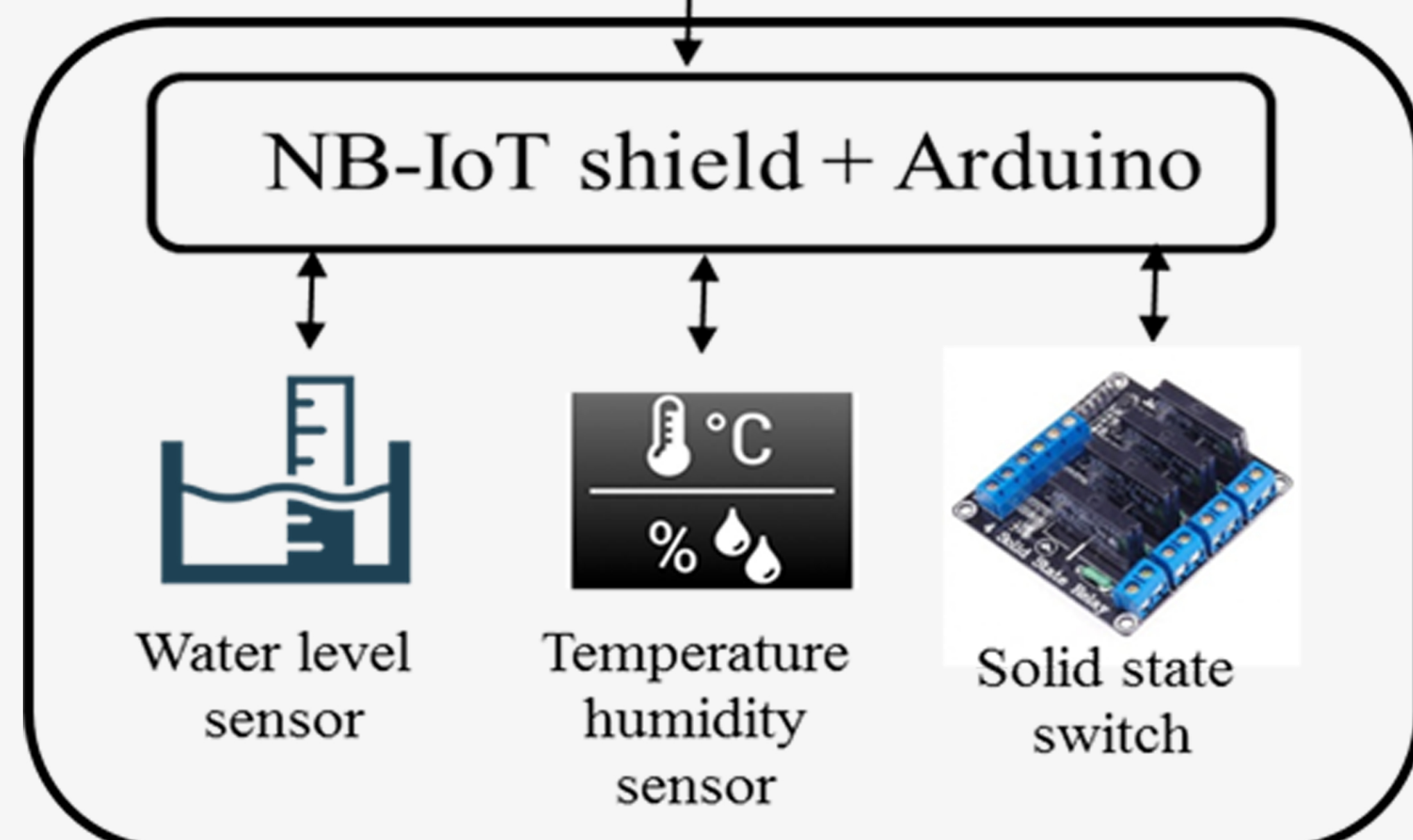
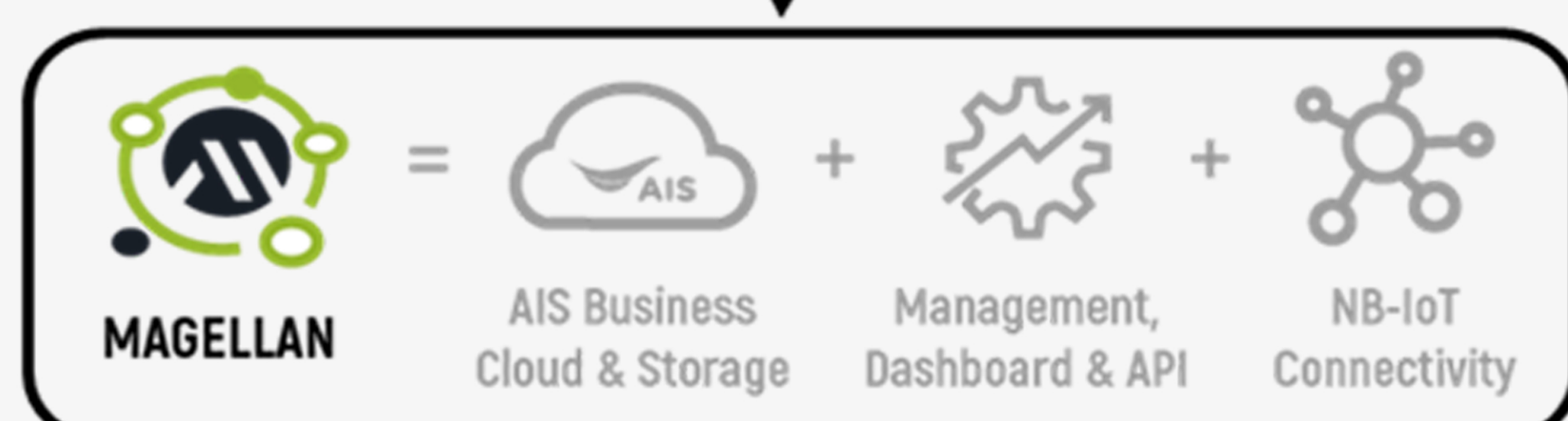


Highlights:

- The home cultivator with LED artificial light could produce organic lettuce of about 0.8-1.0 kg per crop.
- Use of 30 liters of water for one crop production.
- Easy monitor and control by NB-IoT based magellan system.

Utilizations:

- Appropriate for home organic green leafy at home, room and any small area without the sun.
- Best for school, communities for life long learning with IOT based monitor system.
- Good water use efficiency and energy use efficiency.



Smart cultivator with LED lighting system

Novelty: The home cultivator supports the growth of organic plants in the homes by using mixed colors of red and blue LED artificial light along with an automatic irrigation system. The IOT monitoring based with mobile devices. This is optimal for achieving high plants yield and efficient water use

To be required: To be required: The home cultivator is appropriate for application in an urban life style where people could produce their own greens and herbs safely, healthily and happily. The system meets the needs of homes, apartments, technological schools, and communities related to BCG economy and sustainability

Innovation:

Smart cultivator with LED system is a suitable method for growing high-quality plants and increasing crop production to a very high number per area. The major goals of this invention are to implement a NB-IoT based smart cultivator with LED system that use two types of LED array, there are RB-LED and phosphor converted LED (pc-LED). Then study the features of the artificial light spectrum and compare the yields of the Cos-lettuce under difference LED light sources. The smart cultivator with LED system, was controlled for watering, lighting and monitored system operating, temperature and humidity by a NB-IoT module with MAGELLAN platform. The results show that the Cos-lettuce grown under pc-LEDs are probably more capable of photosynthesis than those using RB-LEDs. The average fresh weight of the Cos-lettuce from pc-LED significant higher than RB-LED at $p < 0.05$. The measurement results of environmental parameters, control of lighting and watering in smart cultivator with LED system, data collected from cloud database under MAGELLAN platform during 20-day of experiment, it was work accurately. The smart cultivator with LED system could be utilized to produce organic vegetables at home or school applications.