



Development of Smart Devices for Environment and Beekeeping



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Background and purpose

Beekeeping is essential not only for animal husbandry, but also for agricultural production as a pollinator mediates pollen. In addition to this, it has recently attracted attention as an index to measure the diversity of the surrounding vegetation environment.

In this poster, we will report on the IoT sensing part of CPS(Cyber-Physical System), especially the system construction for understanding the environment and bee ecology using M5Stack.

The main contents are shown in Fig.1.

- Development of smart CPS
- Environment by DNA analysis such as honey (diversity evaluation of vegetation and microorganisms)
- New food development using flower yeast
- Comparison between Japan and the Republic of Azerbaijan

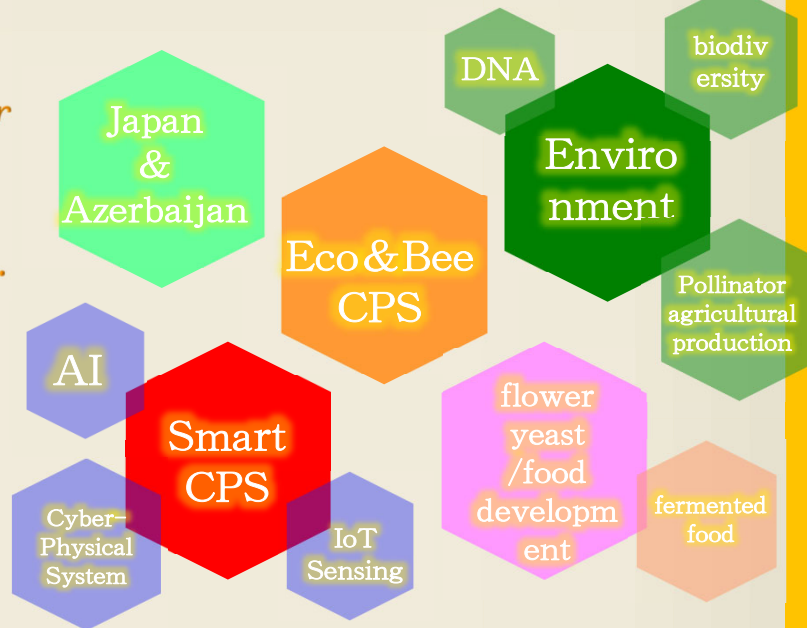


Fig.1 Vision of the research project

Results and Discussion

A smart CPS prototype was developed using M5Stack.

M5Stack is a microcomputer for IoT using ESP32. As an IoT sensor,

- Temperature and humidity sensor
- Temperature and humidity + Co2 sensor was installed.

In the future, we plan to install an AI camera and GPS (Fig.2).

Conclusion and Future Prospects

In this study, we developed a prototype of a smart CPS beekeeper with M5Stack.

In the future, we plan to develop a beekeeping device as shown in Fig.3.



Fig.2 Smart CPS Prototype made with M5Stack



Fig.3 Image of Future Prototype