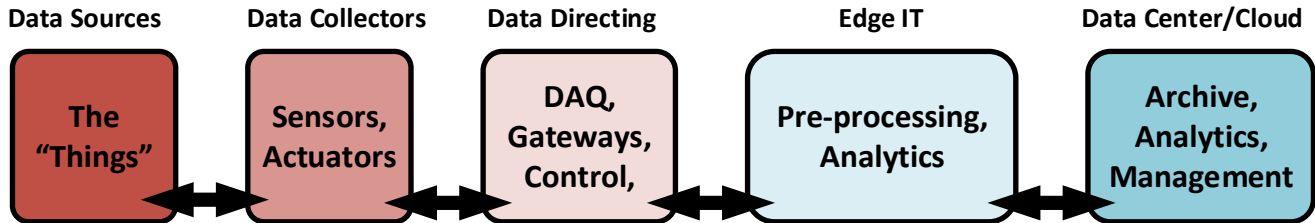


HONDA “Supply Chain Coordination” Challenge

The Power of Dreams

Background

The Internet of Things (IoT) is a fusion of sensors, cloud infrastructure as well as data analytics and visualization. The Internet of Things solution stack exists in several (simplified) stages:



In a manufacturing setting, it plays a key role in supporting business and engineering efforts. It can help keep an eye on factory health by combining sensors with data analytics to predict machine repair or maintenance. IoT also makes the job of distributed management easier and save costs through optimal operating point configuration.

Lastly, IoT can coordinate the supply chain of factory I/O. Knowing when resources are being utilized, to what extent and where forms a picture of minute-to-minute operation. **Good coordination relies on indoor location tracking. Honda, Google, Amazon and others have tried to tackle this, but we need your fresh perspective to make a breakthrough.** You may only have 24 hours, but pressure makes diamonds!

The factory is a complex system, however, and rapid prototyping is at odds with quality and efficiency. Thus it is crucial to experiment with MakeOHI/O solutions for a similar, proxy problem—99P Labs.

99P Labs is a flexible workspace for Honda associates, OSU students and other innovation partners. The entire space is made up of moveable resources—chairs, tables, electronic whiteboards—as well as traditional fixed assets. Below shows a sample configuration of Samsung Flips, whiteboard tables and various chairs.



Analogous to a factory setting, it is important to track the arrangement and utilization of workspace resources. Understanding usage patterns via IoT data streams will allow us to dynamically allocate resources amongst our innovation partners. It will also enable future investment planning as utilization grows.

Challenge

Build an IoT system to track the movement, arrangement and utilization of 99P Labs resources. Understand what it takes for your indoor location tracking system to be low cost and scalable.

Hint: It may be useful to start your design at a block diagram level. Draw lines between systems and figure out how they should interact so that the system's behavior is what you intend.

Hint: It may be helpful to use items like boxes/bins to represent tables, chairs, and other 99P assets. Get creative!

Prizes

First Place: every team member (up to 4 members) will receive an M5Stack GREY IoT Development kit based on the popular ESP32 chipset. This comes fully loaded with an on-board battery, 2" screen, Wifi, Bluetooth, and infinite ways to expand. Each member will also receive an orange M5StickC, ESP32 Pico device. That is an easy-to-use network of 8 IoT devices!



Runner Up: every team member of the runner up team will receive a \$25 gift card

Judging Criteria

- Solution Completeness – does it work? Is there a roadmap for future implementation at 99P Labs or factory?
- Cost Friendliness – how does the solution address the cost needed to scale to track many resources?
- Innovation & Creativity – does the solution bring new ideas & approaches to the problem?
- Design & Build Quality – is the design well thought out? How polished is the prototype?