

Research activities of agriculture machinery
laboratory in Yamagata university
-Activation of the region to use IoT technology-



Self-Information

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Research Field: Agriculture Machinery

Works: Power farming system of upland and paddy field,
Direct sowing system of paddy rice.

Work history:

Mayekawa co.,Ltd(1994~1995:Engineer)

Tohoku agriculture research center (1998:Part-time worker)

Akita agriculture research center(1999~2009:Researcher)

Yamagata university (2009~)

Yamagata university: Shonai area ?



Agricultural products in Shonai area



Laboratory activities on 2020

- How to use AI and IoT technologies on agriculture.
Rice, Soybean, Vegetable soybean(edamame), Safflower, Water melon, Cotton, Atsumi turnip, Potato, Chicken, Cow, etc
- Development of Field management Robot
Paddy field and Upland field
- Development of direct sowing machine
Broad casting machine of rice cultivation
No-till planter and positive pressure type sowing system of upland field



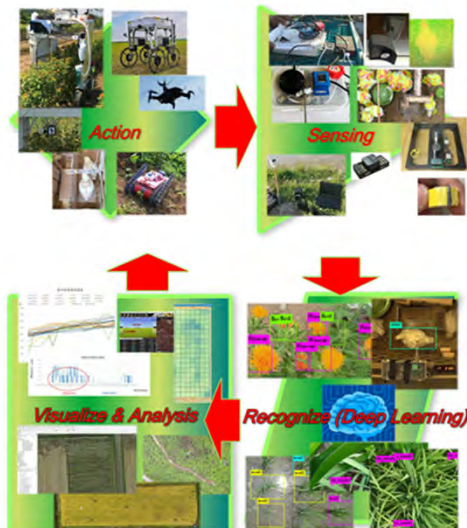
How to get the growth data more easily?

Action: Robots and Drone

Sensing: IoT device

Analyze: AI (Deep Learning)

Visualization: GIS system



Developed robots in our laboratory

Use open hardware and open source, Low cost parts



"Mimamori-kun"
For rice and green
beans sensing robot



Safflower harvesting
robot



Sensing robot for Radish
for working of steep slope



Human tracking
transportation robot



The boiler weight
management robot
(Under developing)



Variety of compact RC robots for field sensing

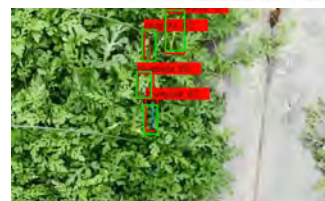
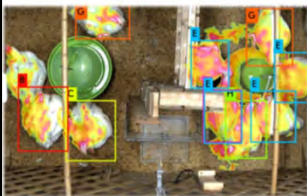
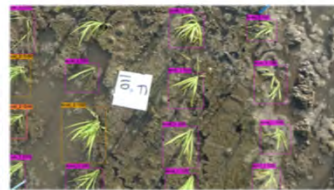
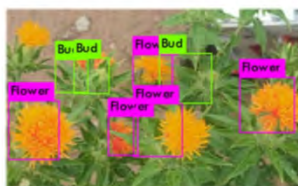


Compact drone



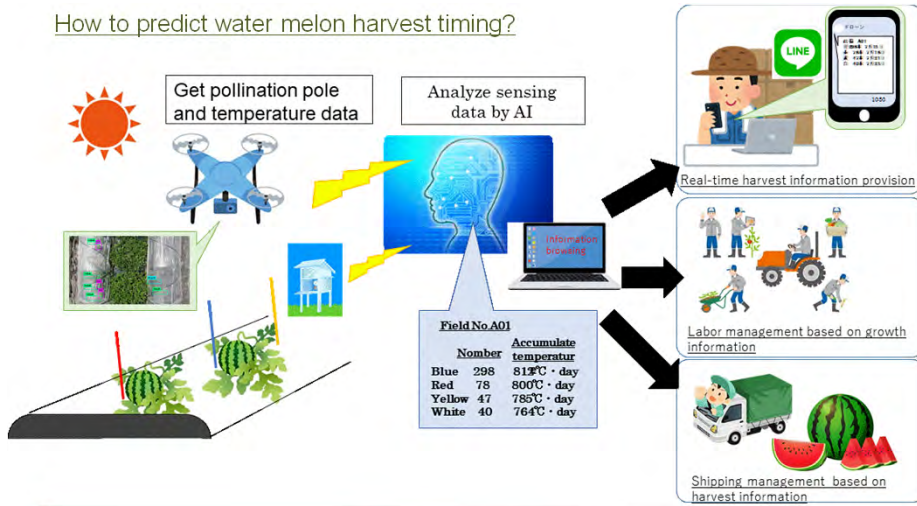
Custom drone

Example of farming job with AI



Example of water melon cultivation with AI

How to predict water melon harvest timing?



Pollination Pole count system by Drone and AI



Water melon transporting robot



Laboratory introduction video



Thank you very much!!

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<https://www.youtube.com/channel/UC4Ggocze-BxZFnxkOOB-mw>

