Agriculture-related Issues and Proposed Technology in Kita Hiroshima

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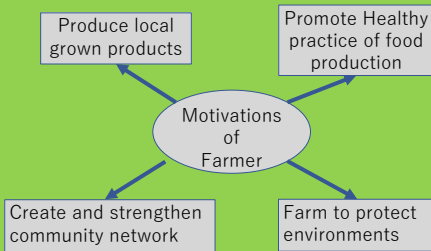
Introduction

- To analyze problems of local people based on social survey (**social implementation**)
- To provide technical solutions to problems faced by them. (**technical creation course**)
- To view & participate in local culture festival (**culture creation**)
- To **understand** farming practices of local

Motivations of local farmers

Motivations of Farmer:
- Produce local grown products
- Promote Healthy practice of food production
- Create and strengthen community network
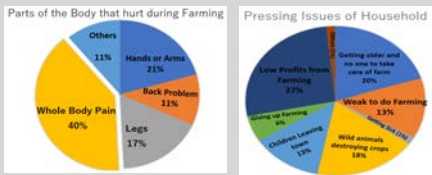- Farm to protect environments

Survey and Observation

Based on survey it was found that problems faced by local people are

- Ageing population and depopulation
- No successors of farmland
- Wild-animal attacks
- Pain in arms and back due to heavy lifting

Survey Results for Issues of Household and Farming
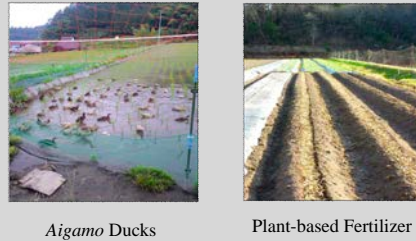

Survey Results for views on new technology

Observations

Animal damaging fence   Wild boar foot prints

Area Information	
Area:	646.24 km2
Population:	18,842 (July 2018)
Households:	8,556 (July 2018)

Source: Kitahiroshima Town Official Website

Local Farming Practices

Aigamo Ducks   Plant-based Fertilizer

Local Culture

Donguri Festival
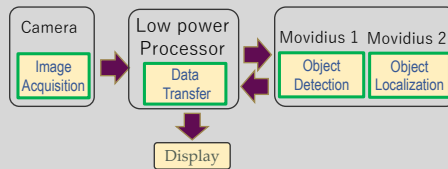
Camera Sensing system for animal detection

- Design surveillance system to detect animals invading the farmland
- The system must satisfy following criteria
  - Low Cost
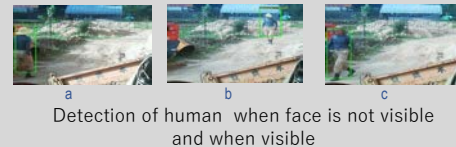 - Light weight
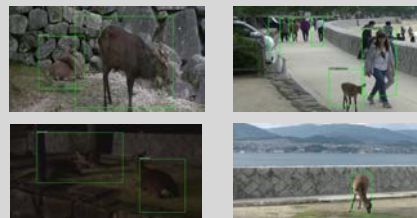 - Artificial Intelligence (AI) enabled
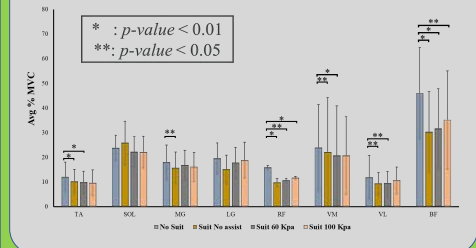
System Design

System Setup

Location : Miyamoto san Farmland

Camera interface with low cost low power AI enabled system

Result

Detection of human when face is not visible and when visible

Result

Detection of Deer at various times
Location : Miyajima

Walking Assist Suit

Design and Evaluation

Reduction in Muscle Excitation

* : p-value < 0.01
** : p-value < 0.05

Elderly Person

Younger Generation

Conclusion

Assistive Suit

Walking assist suit is useful for certain age group whereas addition of upper limb augmentation of would be beneficial for larger group.

Camera Sensing

Light weight, low cost and low powered AI-enabled surveillance system can be used to detect animals in the farm land.

Acknowledgement