[Special Session]

Presentation Type **Oral**

Organizer **Takaharu Kameoka (Mie University, JAPAN)**

[Title of the Session]

IoT Technologies and Services for Digital Farming

[Brief technical abstract of the OS]

In the data driven digital farming as the starting point of the food ecosystem, cultivation management is made using precision farming tools such as various kind of IoT, automated agricultural machines, drone and satellite, and multiband optical spectroscopic sensors. As a result, it becomes possible to design quality as well as predict yield of agricultural crops by using cultivation model and AI technology utilizing various data produced at the farming site. In order to optimize the interests of farmers, however, it is necessary for digital agriculture to be discussed on cultivation, harvesting, and shipping plans taking marketing information and logistics into consideration from consumers positioned as the end point of food ecosystem. This proposed workshop is planned to overview and to discuss the present status and perspective of the advanced researches toward the realization of the digital agriculture in Japan.

[Papers]

Paper #1

Paper title: Development of meteorological observing system and comparison of measured data with the reference products.

Authors: Kazuya Kanda*[1], Susumu Yoshida[2], Yukikazu Murakami[3], Kazuaki Shiraishi[4], Tadashi Ishi[5] and Shinji Chiba[6]

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Paper #2

Paper title: Rice yield prediction and its update based on seasonal weather forecasts

Authors: Kiyoshi Honda[*1], Rassarin Chinnachodteeranun[2], Shinichi Kameoka[1]

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1 Chubu University

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Paper #3

Paper title: Cultivation management of fruit trees using multiband optical sensing

Authors: Takaharu Kameoka[*1], Shinichi Kameoka[2], Shuhei Isoda1, Takashi Okano[1], Ryoei Ito[1], Atsushi Hashimoto[1]

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Paper #4

Paper title: Agricultural Field Monitoring for Multi-Lens Camera TOMBO

Authors: Fumiya Shimobayashi[1], Kazuki Kobayashi*[1], Keiichiro Kagawa[2], Wei Guo[3], Masayuki Hirafuji[3], Jun Tanida[4]

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Paper #5

Paper title: Development of a Measurement and Control System for Greenhouses by using LPWA

Authors: Shinji Chiba[*], Yuki Matamura

Affiliations: National Institute of Technology, Sendai College, Japan

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Paper #6

Paper title: VegiBus.Com - Fresh food distribution platform based on communications

Authors: Yuriko Kato

Affiliations: M2 Labo. Inc., Japan

Paper #7

Paper title: A study on high quality citrus cultivation technique utilizing UAV images and deep learning method

Authors: Kazuaki Shiraishi[*1], Susumu Yoshida2, Shinji Chiba[3], Yukikazu Murakami[4], Kazuya Kanda[5], Takaharu Kameoka[6]

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Paper #8

Paper title: Implementation of automatic input function to the harvest prediction system using neural network

Authors: Yukikazu Murakami[*1], Kengo Miyoshi[1], Kazuaki Shiraishi[2], Shinji Chiba[3], Susumu Yoshida[4], Kazuya Kanda[5]

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Paper #9

Paper title: Quantitative measurement method of plural chemical elements in fresh leaves using prtable X-ray fluorescent spectrometer

Authors: Tatsuki Muramatsu[1], Ken-ichiro Suehara[2], Michitaka Notaguchi[3], Atsushi Hashimoto[*1]

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Paper #10

Paper title: Development of Plant Phenotyping Platform Using Affordable Devices and Sensors

Authors: Takashi Okayasu[*1], Daisaku Arita[2], Atsushi Shimada[3], Rin-ichiro Taniguchi[3], Takashi Yoshinaga[1], Eiji Inoue[1], Yasumaru Hirai[1], Muneshi Mitsuoka[1]

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Paper #11

Paper title: Development of underwater biological resource assessment system using a boat with automatic navigation system and an ultrasound imaging sensor

Authors: Yoshitaka Motonaga[*], Natsuki Yoshikawa, Taro Sato, Nobunao Umeki, Kosuke Homma

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