

Directory Book

Venetian Expo, Level 1, Hall G
Eureka Park | Booth No. 63632



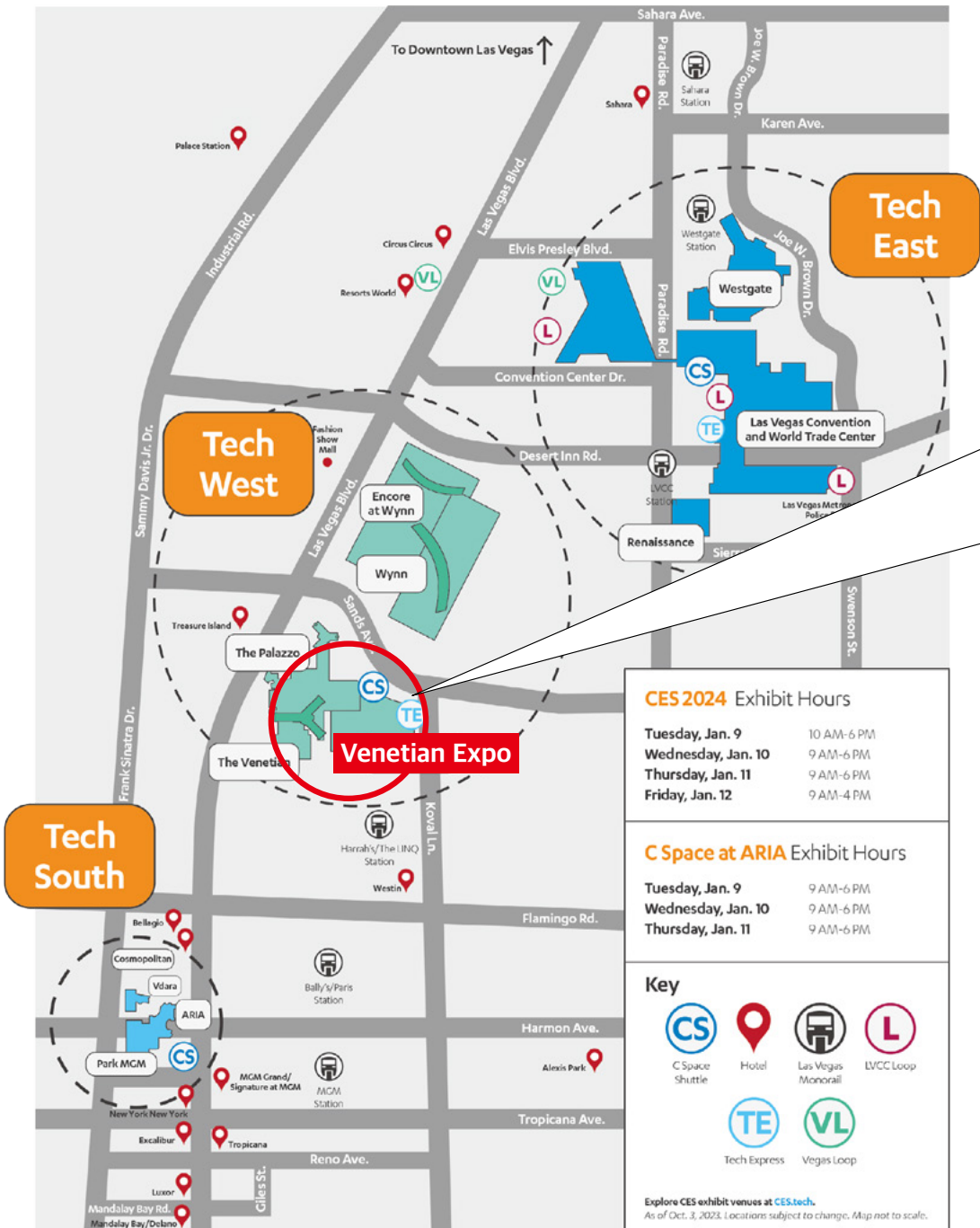


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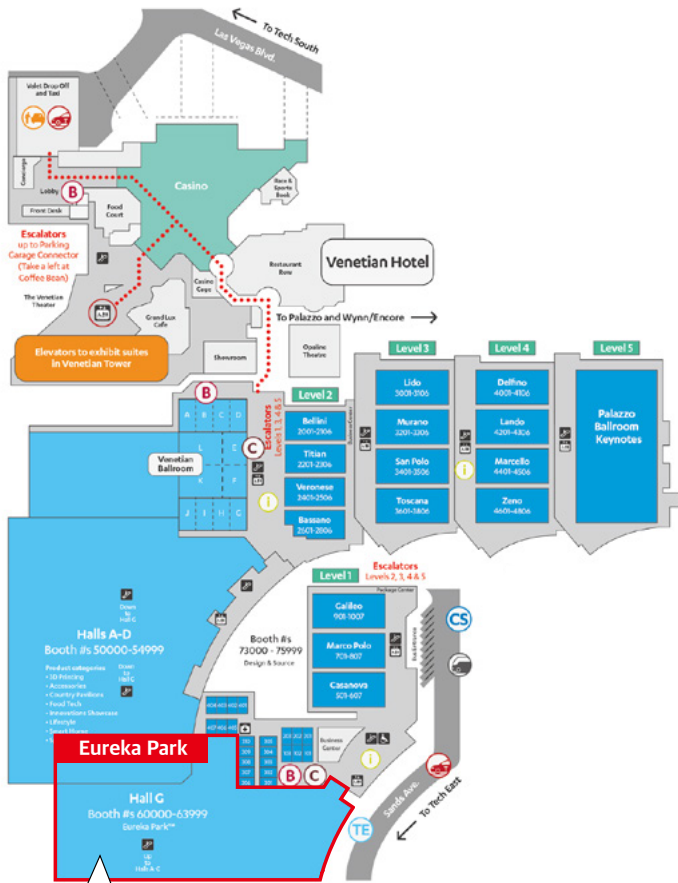
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Show Location Map

Las Vegas City View Map



Tech West Venetian Expo

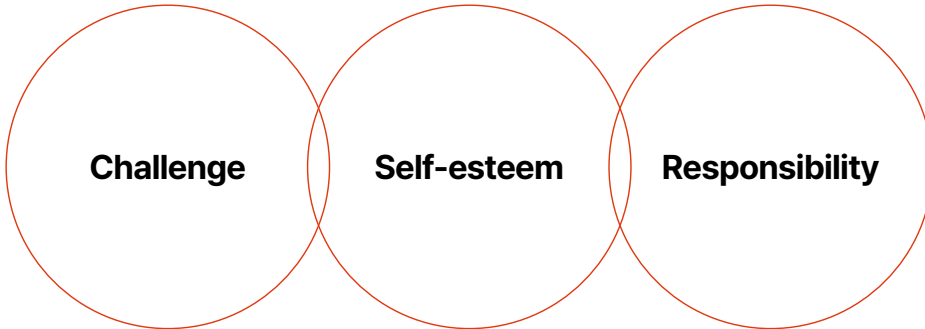


Venetian Expo
 Level 1, Hall G,
 Booth number 63632



About KIST

Core Value



Strategic Direction

01

Provision of a Korean R&D model

- Establishing a performance system for challenging and innovative research
- Presenting a new R&D paradigm through research method innovation

02

Support industry innovation capabilities

- Advancement of performance diffusion strategy to enhance ripple effect
- Strengthening industry support at a new level

03

Establishment of a researcher-centered operating system

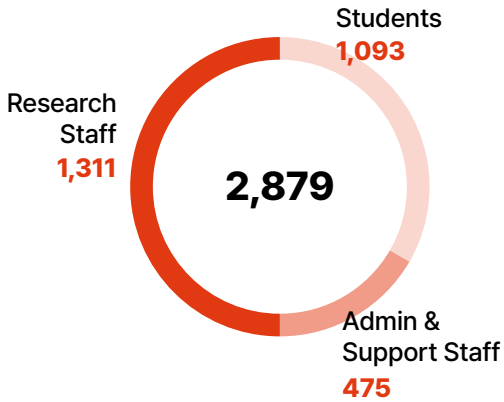
- Establishing a support system for research immersion
- Establishing an organizational culture that inspires pride

04

Leading the national science and technology leadership

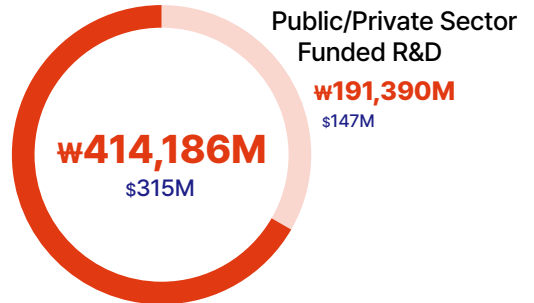
- Advancement of the central role of the national science and technology
- Enhancing the status of the institute by strengthening global cooperation

Budget & Personnel



Students
1,093

Government Contributions
w222,796M
\$168 million



Public/Private Sector Funded R&D

w191,390M
\$147M

\$315M

Global Open Research



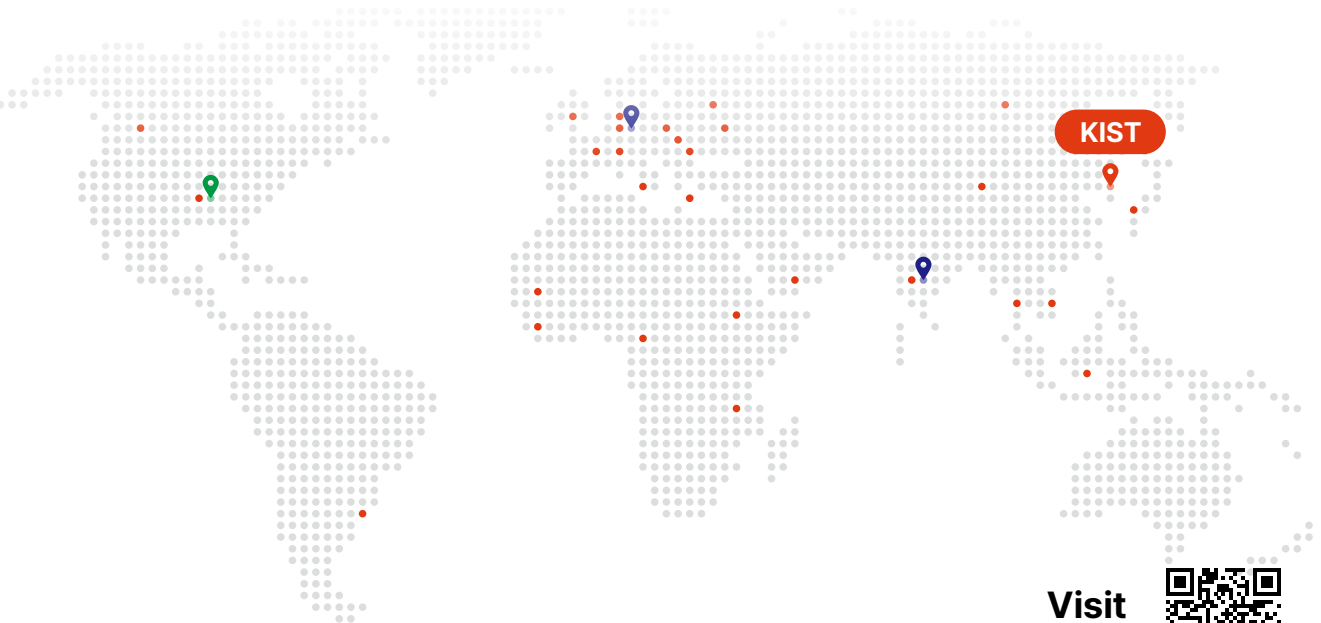
Overseas Centers

- KIST Europe (Saarbrücken, Germany)
- Indo-Korea Science and Technology Center (Bangalore, India)



Joint Laboratory

- KIST-DFCI (Boston, USA)
- KIST-psu (Pennsylvania, USA)
- KIST-LLNL (California, USA)



Visit
our website



Center for Neuromorphic Engineering

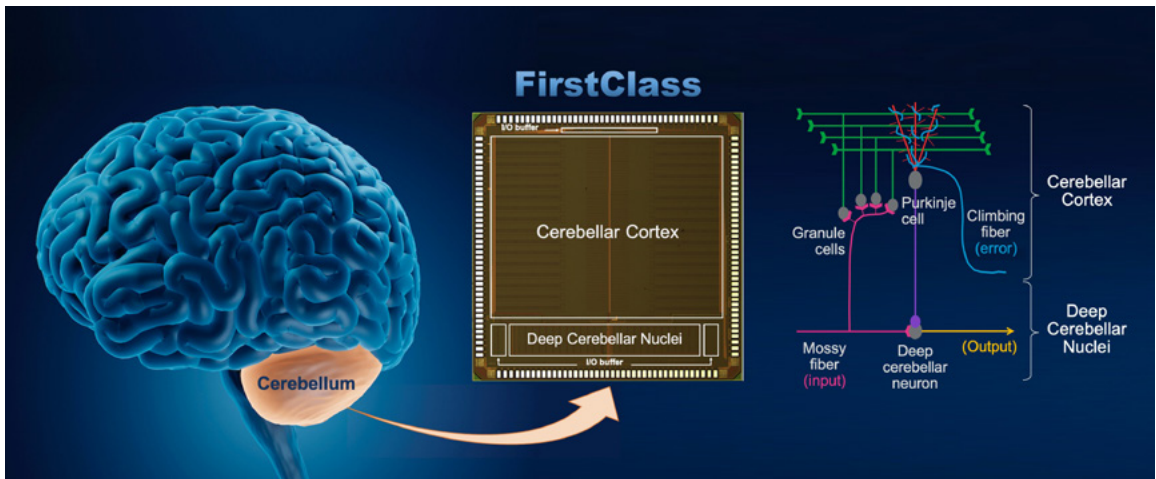
FirstClass — Beyond Safety To Your Own Comfort

The cerebellum is a part of the brain that plays a crucial role in adapting and fine-tuning motor programs to make accurate movements through a trial-and-error process. KIST's FirstClass is a cerebellum-inspired neuromorphic chip that can adapt and fine-tune autonomous driving to the driving style of human drivers, customizing the ride comfort.

Products

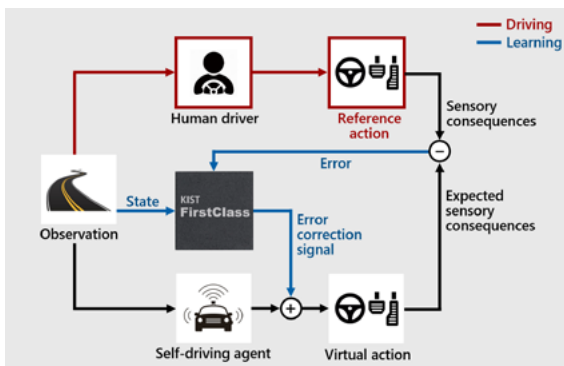
FirstClass (Cerebellum-inspired chip)

Features: spiking neural network, on-chip online learning, in-memory computing, event-driven

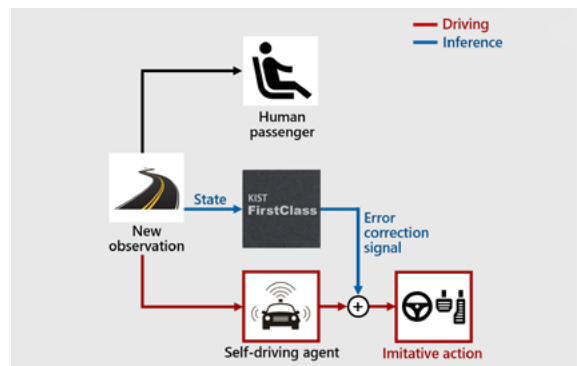


Imitation learning-based autonomous driving

Online imitation learning



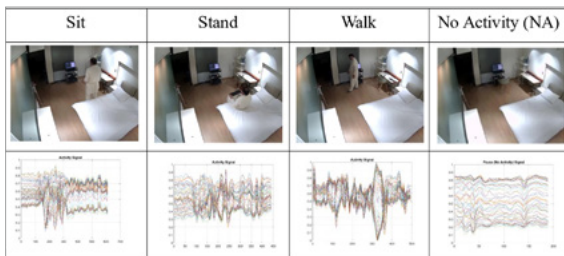
Inference



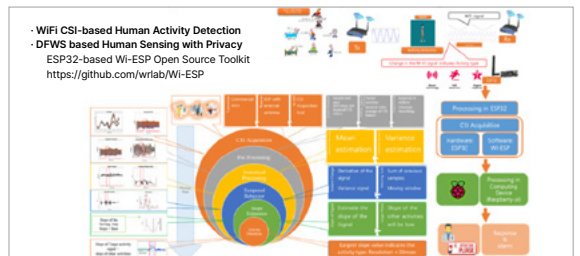
CARE (CSI-based Activity Recognition for the Elderly-care)

CARE is a DFWS (Device Free Wireless Sensing)-based human activity recognition technology that uses Wi-Fi signals to protect privacy and can detect both activity type and activity intensity. This technology can be used in life-logging applications in monitoring healthcare for the elderly.

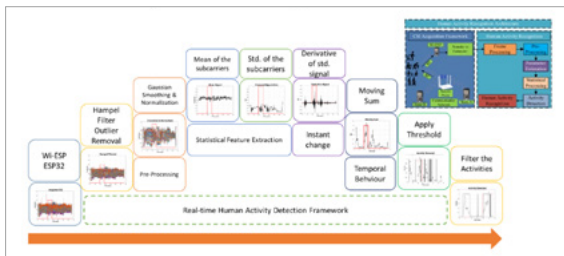
Steps



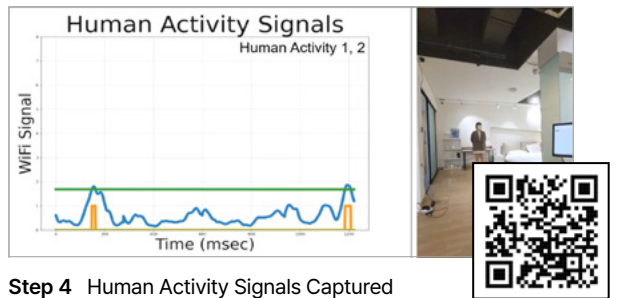
Step 1 Activity Data Collection: Wi-ESP based HAR



Step 2 Human Activity Detection: Pre-Processing



Step 3 Human Activity Detection Algorithm



Step 4 Human Activity Signals Captured using ESP32

Acknowledgement

This work was supported by the Industrial Technology Innovation Program(20012462) funded by the Ministry of Trade, Industry & Energy(MOTIE, Korea), the KIST under the Institutional Program (Grant No. 2E32281), and the National Research Foundation of Korea (NRF) grant (NRF-2021R1A2C2093065) funded by the Korea government (MSIT).

Center for Intelligent & Interactive Robotics

CollaBot

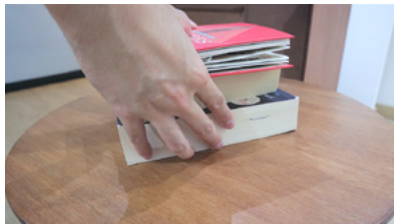
CollaBot is an integrated system featuring a dedicated application and multiple robotic components: a robotic bookcase and robotic chairs. CollaBot system collects environmental and user data, recognizes context, and delivers tailored services to users through the combination and collaboration of robotic furniture within limited spaces and with constrained resources.



The furniture of CollaBot can perform its primary function and can change its function aligning with contextual considerations.



A Stool as a Ladder

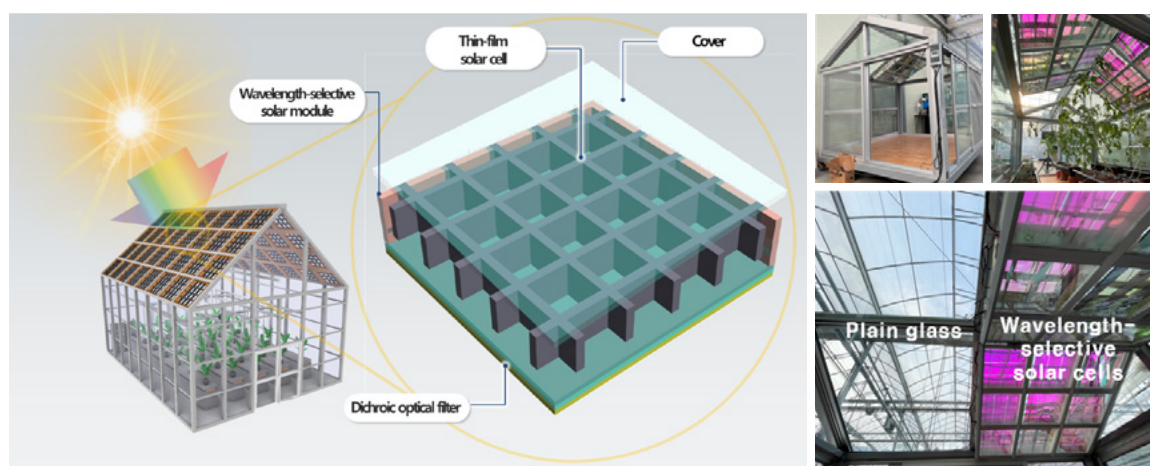


A Stool as a Cart

Clean Energy Research Division

Self-Powered Greenhouse Using Wavelength-Selective Solar Cells

- Greenhouse exhibition utilizing wavelength-selective solar cells for power generation without reducing crop productivity.
- Installation of light-transmitting solar cells on the greenhouse's roof, selectively allowing the critical wavelength range for crop growth, utilizing reflected light for power generation.
- Demonstration of power generation using wavelength-selective solar cells and presentation of crop cultivation within the solar cells-equipped greenhouse.



Conceptual diagram of self-powered greenhouse using wavelength-selective solar cells

Greenhouse with wavelength-selective solar cells

Acknowledgement

This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET) and Korea Smart Farm R&D Foundation (KosFarm) through Smart Farm Innovation Technology Development Program, funded by Ministry of Agriculture, Food and Rural Affairs (MAFRA) and Ministry of Science and ICT (MSIT), Rural Development Administration (RDA) (grant number: 421036-03)

Smart Farm Research Center

3D Plant Scan Robot

A system that acquires multiple 2D images from various angles and uses the AI algorithm NeRF (Neural Radiance Fields) to create 3D plant images that can precisely extract plant phenotype data that can be used in the field of precision agriculture.



Robot system scanning 2D plant images



3D plant image synthesized using AI algorithm from 2D images

Acknowledgement

This work was supported by the Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET) and the Korea Smart Farm R&D Foundation (KosFarm) through the Smart Farm Innovation Technology Development Program, funded by the Ministry of Agriculture, Food and Rural Affairs (MAFRA) and the Ministry of Science and ICT (MSIT), Rural Development Administration (RDA) (421025-04).

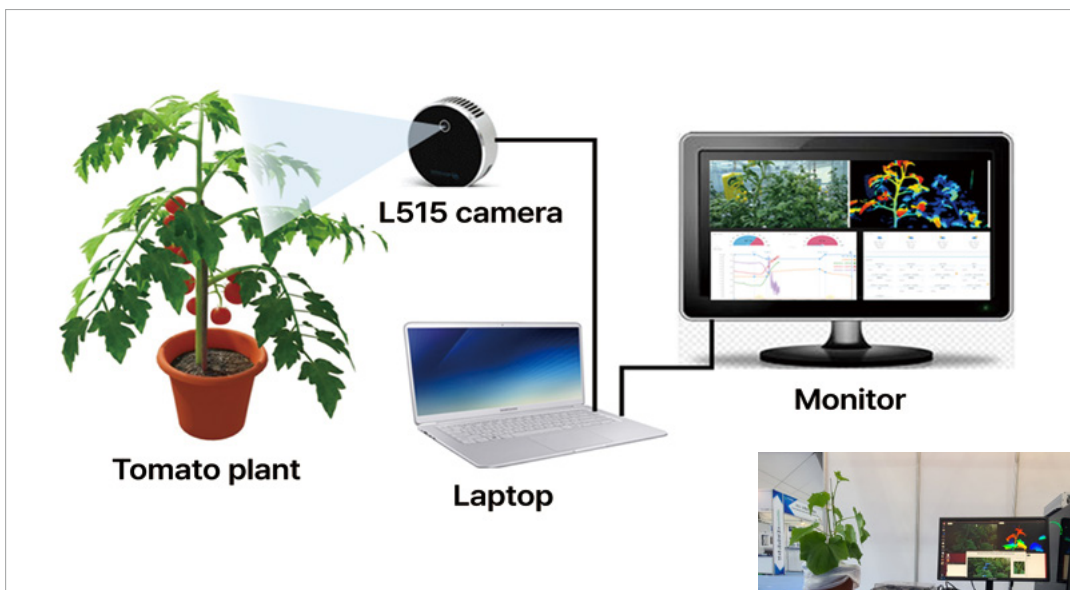
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Smart Farm Research Center

Plant Growth Measurement and AI Greenhouse Control

- Demonstration of technology for extracting plant growth factors and based on depth image sensors
- Demonstration of a deep learning model to extract stem thickness and flower height indicators from tomato
- Demonstration of AI greenhouse autonomous control technology



Acknowledgement

This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry(IPET) and Korea Smart Farm R&D Foundation(KosFarm) through Smart Farm Innovation Technology Development Program, funded by Ministry of Agriculture, Food and Rural Affairs(MAFRA) and Ministry of Science and ICT(MSIT), Rural Development Administration(RDA)(grant number:421026-04).

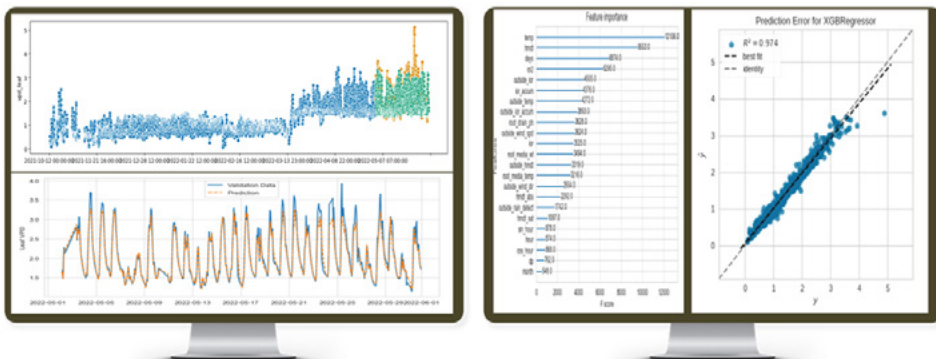
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Smart Farm Research Center

Monitoring System For Plant Physiological Status

- Collection of leaf temperature and environmental data using thermal imaging camera and climate sensors
- Demonstration of AI model-based leaf VPD predictions
- Demonstration of AI-based classification of plant physiological status



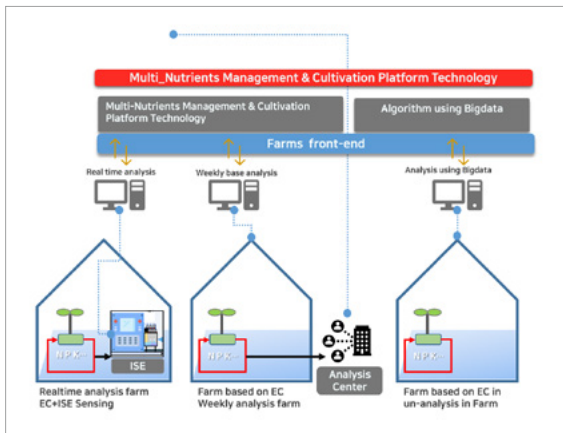
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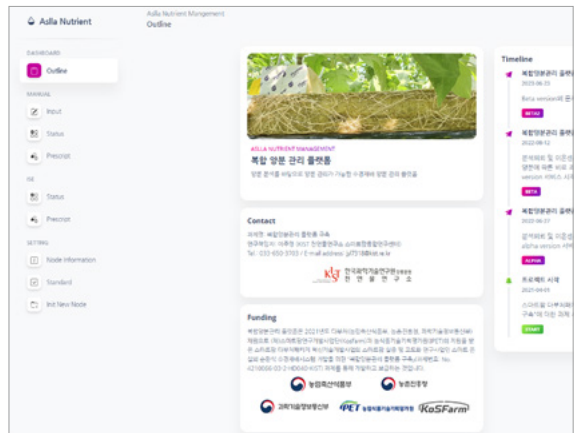
Smart Farm Research Center

Multi-Nutrients Management & Cultivation Platform Technology

- Suppress Excessive Use of Fertilizers and Minimize Environmental Load Through Optimal Nutrient Solution Composition
- Multi-Nutrients balance Management Software in Hydroponic Cultivation System (Grant # 421006-03)
- Present Guidelines on How to Optimally Prepare Nutrient Solutions according to Crop Conditions (Intramural Grant # 2Z06831)
- Crop Root and Optimal Energy Management (Grant #421039)



Multi-Nutrients Platform Overall Technology Schematic Diagram



Multi-Nutrients Management & Cultivation Platform Technology

Acknowledgement

This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET) and Korea Smart Farm R&D Foundation (KoSFarm) through Smart Farm Innovation Technology Development Program, funded by Ministry of Agriculture, Food and Rural Affairs (MAFRA) and Ministry of Science and ICT (MSIT), Rural Development Administration (RDA) (grant number: 421006-03 and 421039-03), and by an intramural grant (2Z06831) from the Korea Institute of Science and Technology, Gangneung, South Korea

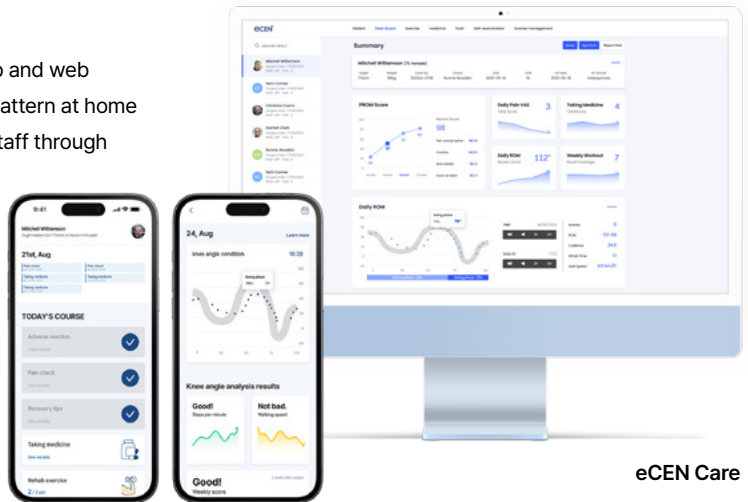
eCEN Inc.

Gait Analysis IoT and Digital Healthcare

eCEN is a sensor-based ICT company specializing in digital healthcare. Our keywords to help patients achieve systematic recovery are Easy, Everywhere, and Serving. We deeply care Joint Surgery Patients and Surgeons with Remote Monitoring and Online Visit through Home-based Rehab.

Product

The system consists of a device, mobile app and web dashboard. You can easily check your gait pattern at home and manage recovering data with medical staff through a web dashboard. Our at-home-solution covers seven areas, including recovery and medication monitoring, educational academy, self-check survey, pain check, care with family via data-share and rehab compliance.



eCEN Care



eCEN Tracker

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