



ARGOSVUE

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ARGOSVISION

Panoramic 3D Vision AI for Robots and Mobility

Company Introduction

Panoramic 3D Vision AI for Robots and Mobility

ArgosVision, a pioneering startup born from the Center for Integrated Smart Sensors (CISS), a research group established under the South Korean Ministry of Science and ICT's Global Frontier Project, is transforming the field of intelligent robotics. Leveraging cutting-edge panoramic 3D vision AI technology, ArgosVision provides robots with a human-like wide field of view, significantly enhancing their visual intelligence. Our mission is to make robots more useful and seamlessly integrated into everyday life.

History

- 2020** Spin-off from the Center for Integrated Smart Sensors (CISS)
- 2021** Joined the KDB NextONE 3rd cohort
- 2021** Selected for TIPS (Tech Incubator Program for Startup Korea) by the South Korean Ministry of SMEs and Startups
- 2023** Participated in the IBK Changgong Guro 9th cohort
- 2023** Selected for Samsung Electronics' C-Lab Outside 5th cohort
- 2024** Chosen as a robotics startup for the DIPS (Deep Tech Incubator Project for Startups) 1000+ program by the South Korean Ministry of SMEs and Startups
- 2024** Participated in Taiwan Epoch Foundation's Garage+ Startup Global Program S24 batch

Awards

ArgosVision has earned several prestigious awards for its innovations

- 2021** Grand Prize at the K-Global Startup Competition in South Korea
- 2021** Excellence Award at the Try Everything 'Korea Challenge Competition' in South Korea
- 2023** CES Innovation Award in the Vehicle Tech and Advanced Mobility Category
- 2023** Gold Prize at the 7th G-Valley Startup Competition



These accolades underscore our commitment to advancing technology and making a significant impact on the robotics and mobility industry.



Accelerated by **SAMSUNG**



Technology

ArgosVue - Panoramic 3D Vision AI

ArgosVue is engineered with a vertically arranged fisheye stereo camera system, providing a human-like wide field of view. The fisheye lenses capture extensive visual data, processed by proprietary spherical stereo matching algorithms on an embedded processor in real-time to create 3D depth maps and point clouds. The 3D depth data enables the recognition of surrounding obstacles and road surface irregularities, facilitating autonomous navigation in diverse indoor and outdoor environments. Additionally, it enhances human-robot interaction by detecting and responding to human presence and actions, capturing full-body movements even when individuals are beside the robots within arm's length. These algorithms for autonomous navigation and human-robot interaction are also processed by the embedded processor inside the ArgosVue, streamlining the development and deployment of robot vision systems.

Human-like Wide Field of View

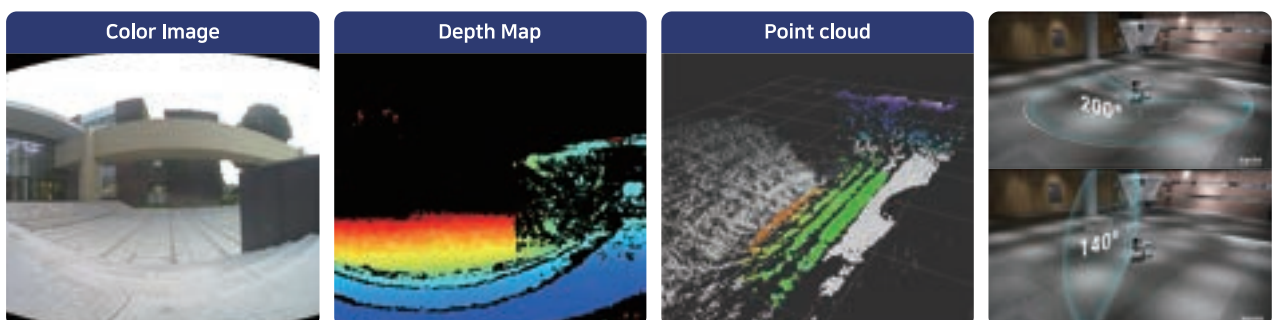
ArgosVue is equipped with a vertically arranged fisheye stereo camera system that delivers 3D information with a human-like wide field of view, reaching up to 200 degrees horizontally and 130 degrees vertically. This surpasses the 120-degree limitation of conventional 3D depth cameras, offering comprehensive environmental awareness and significantly enhancing the visual intelligence of robots. ArgosVue's innovative panoramic 3D vision sensor technology is protected by patents in the United States, Japan, and South Korea, with pending patents in China and the EU.

Enhanced Visual Intelligence

The wide field of view provided by ArgosVue enables robots to detect surrounding obstacles and road surface irregularities, ensuring seamless autonomous navigation in various indoor and outdoor environments. Additionally, it detects and responds to human presence and actions, facilitating advanced human-robot interactions by capturing full-body movements even when individuals are beside the robots.

Simplified Robot Vision System

ArgosVue's expansive field of view eliminates the need for the complex integration of multiple 3D sensors, simplifying robot vision systems and reducing costs. Its innovative approach in panoramic 3D vision AI positions ArgosVue as a leading solution in robotic vision, advancing the field of intelligent robotics.



Technology

Autonomous Navigation for Robots

Robots equipped with LiDAR sensors face significant limitations, particularly due to LiDAR's narrow vertical field of view. This makes it challenging to detect road surface irregularities. To address this, robots often rely on a combination of LiDAR sensors and 3D depth cameras. ArgosVue revolutionizes autonomous navigation by providing a human-like wide field of view. With this expansive coverage, ArgosVue enables robots to effectively recognize surrounding obstacles and road surface in intricate indoor and outdoor environments—all with a single module.



Human-Robot Interaction

ArgosVue represents a significant leap forward in human-robot interaction. It can capture the full human body at arm's length, detecting individuals and interpreting their behaviors with embedded AI processor. As current robotic functionalities remain limited, ArgosVue is a transformative technology that will pave the way for robots to take on multifunctional roles in various settings, from homes and workplaces to recreational spaces. ArgosVue is poised to accelerate this evolution, expanding robot capabilities and seamlessly integrating them into our daily lives.



Application Fields

ArgosVue's panoramic 3D vision AI technology offers versatile applications across multiple domains, particularly in robotics and mobility. It enables robots to achieve autonomous navigation in diverse indoor and outdoor environments by effectively recognizing surrounding obstacles and road surface irregularities with a single module. This same technology can also be applied to mobility devices, such as electric wheelchairs, to prevent crashes and falls.

Additionally, ArgosVue's ability to recognize nearby humans makes it an excellent tool for enhancing safety around forklifts and construction machinery, where previous technologies have struggled to detect people within dangerous working zones. ArgosVue excels at identifying individuals within the critical operational radius, making it invaluable in workplaces, hospitals, and nursing homes.

Mobile Robots

Autonomous navigation by recognizing obstacles and road surface conditions with a single module.



Electric Wheelchairs

Prevention of crashes and falls.



Forklifts and Construction Machinery

Detection of nearby workers without blind spots, ensuring safety in hazardous areas.



Fall Detection

Monitoring human safety in workplaces, hospitals, and nursing homes.



ARGOSVUE | Developer Kit

Panoramic 3D Vision AI in a Single Box

The ArgosVue Developer Kit features a human-like wide field of view, powered by an AI processor for advanced 3D perception. It is specifically designed for robotics research and development, focusing on applications such as autonomous navigation and human-robot interaction.



Key Features

Human-Like Wide Field of View

ArgosVue leverages innovative technology to extract 3D depth information from fisheye images, providing a panoramic, human-like field of view that surpasses traditional 3D cameras.



Single-Module Solution

ArgosVue delivers a comprehensive detection system for obstacles and cliffs, both in front of and alongside robots. This eliminates the need for multiple 3D sensors, simplifying the design and reducing costs.



Nearby Human Recognition

The system recognizes full-body movements of individuals within arm's length, enhancing human-robot interaction and ensuring safety in diverse environments.



ROS (Robot Operating System) Support

ArgosVue's compatibility with ROS simplifies integration and deployment across a wide range of robotic platforms, making it a versatile and efficient solution for various robotics and mobility applications.



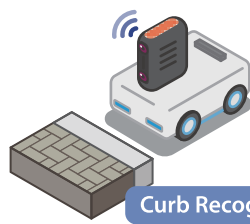
Panoramic 3D Vision AI Solution

Autonomous Navigation

ArgosVue revolutionizes the autonomous navigation of robots. With its capability to detect obstacles and steps using a single module, it enhances scene understanding and facilitates navigation in diverse indoor and outdoor environments.

Human-robot Interaction

ArgosVue enhances human-robot interaction by recognizing full-body actions of individuals at arm's length. This innovative feature improves human recognition and consequently enhances human-robot collaboration and safety across diverse operational environments.



Specifications

Model	DK-N103-GCS01	DK-N303-GCS01
Image Sensor	OnSemi AR0234CS Color CMOS Image Sensor with Global Shutter	
Image Sensor Resolution	1920 x 1200	
Lens	1.39mm Fisheye, f/2.0	1.12mm Fisheye, f/2.0
Max Field of View	190 x 130	210 x 160
Depth Map Resolution	950 x 650 (Configurable)	1050 x 800 (Configurable)
Depth Range	0.45m ~ 9m @950x650	0.45m ~ 9m @1050x800
Depth Map Frame Rate	17fps @ 950x650	21fps @ 1050x800
Stereo Baseline	100mm	
Dimension	47.4mm (W) x 158.2mm (H) x 136.3mm (D)	
Weight	402g	
Operating Voltage	DC19V	

Note: Specifications are subject to change without notice.



ARGOSVUE | DAR

Pseudo-LiDAR for Robots and Mobility



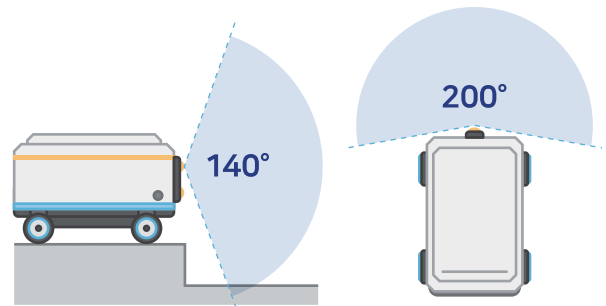
Panoramic Pseudo-LiDAR for Autonomous Navigation

ArgosVue DAR introduces an innovative panoramic pseudo-LiDAR system designed for mobile robots and mobility applications. With an expansive 200-degree horizontal and 140-degree vertical field of view, it ensures comprehensive situational awareness. Unlike conventional LiDAR and cameras, this advanced system not only detects surrounding obstacles but also identifies road surface irregularities, preventing crashes and falls and ensuring secure navigation for robots and mobility. Its wide field of view enables simultaneous capture of a broader area, facilitating real-time obstacle detection and pedestrian recognition during movement.

Simplified Robot Vision System

ArgosVue DAR offers a streamlined single-module solution that eliminates the need for multiple 3D sensors. This consolidation significantly reduces costs and simplifies data processing demands. By integrating ArgosVue DAR into their systems, developers can accelerate the development of robot and mobility solutions, benefiting from enhanced perception capabilities while minimizing expenses.

Technology	Fisheye Stereo Camera
Field of View	200° x 140°
Resolution	1,000 x 700
Frame Rate	20Hz
Effective Depth Range	0.5m ~ 8m



Autonomous Navigation in Diverse Indoor and Outdoor Environments

The ArgosVue DAR efficiently detects surrounding obstacles and cliffs using a single module, eliminating the need for multiple 3D sensors. This streamlined approach enhances situational awareness and enables reliable autonomous navigation in a wide range of indoor and outdoor settings.

Advanced Pedestrian Protection

ArgosVue DAR excels at recognizing the full height of nearby individuals, whether they are in front of or alongside the robot. By accurately identifying people and preventing collisions, it prioritizes pedestrian safety as they approach.



Indoor Navigation



Outdoor Navigation



Mobility



ARGOSVUE | AIoT

Panoramic Vision AIoT for Human Safety

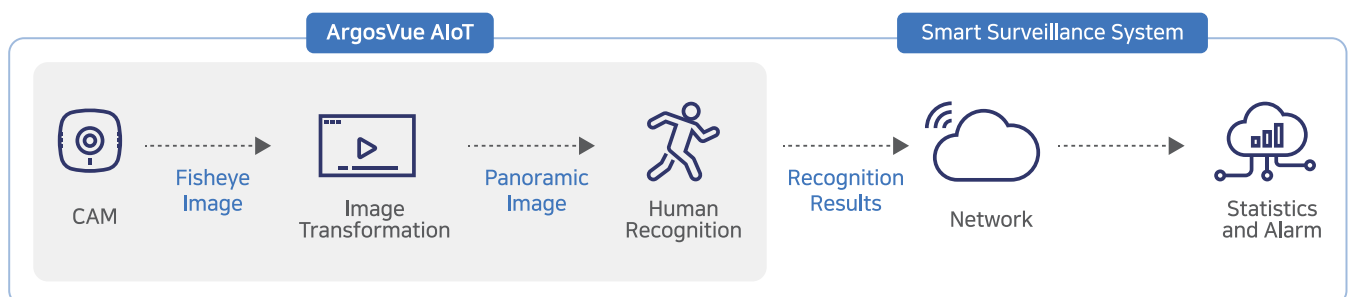


Ensuring Human Safety in Various Environments

ArgosVue AIoT is a panoramic vision AI device designed for human safety. With exceptional person detection and pose estimation capabilities, it offers a human-like wide field of view, eliminating blind spots. Able to recognize full-body individuals and various poses even at close range, it ensures safety in construction sites, assembly lines, hospitals, and nursing homes. Its embedded AI processor processes human recognition internally, transmitting only recognition results, which reduces costs and enhances scalability for diverse applications.

Smart Surveillance for Human Safety

ArgosVue AIoT stands out in human detection and pose recognition, accurately identifying individuals even at arm's length, thanks to its wide field of view. It transmits recognition results to the surveillance system via the network. This smart surveillance system compiles statistics and autonomously triggers alarms based on predefined rules.




Efficiency and Scalability

ArgosVue AIoT identifies individuals and transmits only recognition results, enhancing privacy, reducing communication costs, and simplifying surveillance processes. Given the compact nature of recognition data compared to full videos, a single surveillance system can oversee hundreds of ArgosVue AIoT devices. Furthermore, the surveillance system autonomously generates rule-based alarms, minimizing the need for manual surveillance by humans.




Applications



Fall Detection

ArgosVue AIoT promptly detects abnormal postures and triggers alarms, ideal for fall detection in various environments, including workplaces and nursing homes.



Work Zone Safety

ArgosVue AIoT ensures safety in the vicinity of forklifts or construction machinery, detecting individuals within 1 meter without blind spots and triggering alarms promptly to safeguard nearby workers.



People Counting

ArgosVue AIoT accurately counts people in diverse settings such as workplaces and retail stores, enabling monitoring of foot traffic, analysis of visitor trends, and enhancement of operational efficiency.