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AI robots are stepping up in harmful environments... Promising startups showcase innovative solutions [Geeks]

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DAL-E

Diden Robotics solves harmful industrial sites with robots

Diden Robotics is a startup that develops industrial robot solutions. Kim Jun-ha, CEO of Diden Robotics, explained, "Currently, there are cases where people work in harmful environments at many industrial sites, which is dangerous," and "This is especially true in the shipbuilding industry, oil refining and chemical industry, steel bridge industry, and power plants."

Kim said, "There is also a serious shortage of manpower due to the frequent occurrence of industrial accidents and the avoidance of dangerous working environments." He added, "Wearing safety equipment and installing safety devices to work in dangerous working environments slows down work speed and increases costs."

The quadrupedal riding robot being developed by Diden Robotics is an industrial robot specialized in working in steel environments. It provides automated inspection and work solutions using robots in dangerous or hard-to-access environments. Kim said, "Our robotics is trying to solve the problem of obstacles, perform non-destructive testing using robotic arms, and provide mobility to solve the problems of existing industrial sites."

Kim explained, "You can move around freely and work at various industrial sites, you can walk differently from ordinary robots, and you can load heavy work tools and work directly with work tools." The core competitiveness of Diden Robotics is its quadrupedal technology. CEO Kim earned his doctorate from KAIST Hubo Lab and founded the company.

Kim said, "Our team can provide the solutions that customers want based on hardware and software technology," and added, "Based on these element technologies, we have conducted studies such as the highest Guinness record for walking speed on the ground." Recently, Diden Robotics also attracted seed investment from Blue Point Partners.

Curaco develops a robot that processes feces

Curaco has developed a feces disposal robot. Curaco CEO Hoon-sang Lee said, "When the elderly reach a certain age, they become impaired and usually dispose of feces by wearing diapers or on the bed using a bed pan." He added, "It is very difficult for two caregivers to change diapers, and if the patient is conscious, they can feel great shame."

Curaco's excretory care robot Care Bidet is a robot that automatically processes the feces of patients who have to stay in bed due to limited mobility. When the patient lies down to urinate, the sensor activates and sucks it up. The bidet function also works to wipe and dry the patient's buttocks. The feces collected in the garbage collection bin only need to be cleaned up once or twice a day.

"The price of a diaper is about 1,000 won, but I use at least six diapers a day," he said, adding, "The cost of purchasing diapers is more than 2.3 million won in one year." He continued, "In the case of caregivers, after the spread of COVID-19, it is a high-cost structure that requires paying about 150,000 won per day and more than 50 million won in one year," explaining why a fecal waste management robot is needed in terms of cost.

Carebidet was recently recognized for its technology and received a code from the U.S. Insurance

Administration (CMS). Previously, it was first applied to long-term care insurance in Japan in 2018. Long-term care refers to the act of receiving outside help due to a disability after an illness or accident. Japan created long-term care insurance in 2000 to help people in need of long-term care. The 'Hospital Medical Information System (EMR)-linked Medical Smart Excretion Care System and Service Model' developed by Curaco together with Seoul National University Bundang Hospital was selected as one of the top 10 major projects of the cross-ministry full-cycle medical device R&D project in March.

Korea Robotics operates a cooking robot for school lunches

Hankook Robotics is a food tech startup. The company is developing a feeding robot solution that can cook stir-fry and fry. Ahn Dong-wook, director of Korea Robotics, said, "Recently, there has been an increase in the number of places introducing cooking robots due to market conditions such as job shortages and minimum wage increases in the restaurant industry, as well as standardized recipes, but the related industry has not grown significantly."

Director Ahn explained, "The reason is the burden of introducing robots and the fact that the burden of humans in the actual cooking work has not been properly relieved." He added, "Hankook Robotics is looking for a market where cooking robots can be used more valuably." He said, "The market that Hankook Robotics has found is group meals with a market size of more than 15 trillion won."

Director Ahn explained, "We chose school lunches as a priority target, but school lunches are the largest and are very sensitive to health problems due to the nature of the public sector." He said, "Instead, it is a predictable market because there is less risk of business closure and it moves according to long-term plans."

Ahn said, "The number of school lunches is decreasing, but the number of schools installing and operating robots is increasing." He said, "If you look at the actual school lunch sites, there is no place where workers are not sick due to the large amount of cooking for more than 500 people a day," and added, "Recently, the workers involved have been exposed to carcinogens for a long time, which is a great threat to their health."

Ahn said, "With the support of the Korea Robot Industry Promotion Agency, Korea Robotics installed a school lunch robot at a middle school in Seoul for the first time in the country, and automatically cooked all 730 servings of fried, stir-fried, and soup with four robots." He continued, "This automatic cooking reduces the exposure time of workers to carcinogens and reduces the input of muscle force."