Construction Robotic System for Building Construction Operation Automation

Automated robotic arm placing building materials with precision, boosting speed and safety.

Researchers at Purdue University have developed a new robotic system to help automate building construction. The system features sensors that attach to various surfaces on a building to provide information to a unique software program. Then, the algorithms in the computer code give instructions to a robotic arm that places and fastens construction materials such as for roofing, sheathing, and wall paneling applications. There has been a 120% increase in demand for residential buildings in the last 30 years, and Purdue researchers meet this challenge as their robotic system allows for dynamic controls, even in harsh construction environments.

Advantages

-Efficient

-Accurate

-Automated

Potential Applications

-Construction

-Manufacturing

Research Assistant Biographies

Christopher Lacny is a senior at Purdue University dual majoring in electrical engineering and applied physics. He has participated in three years of undergraduate research with the AutoIC Lab and has completed internships at John Deere and Fiat Chrysler Automobiles, with both internships focused on embedded systems. Christopher has a strong interest in digital and electromechanical systems, and is passionate about applying his knowledge

Technology ID

2020-ZHAN-68922

Category

Buildings, Infrastructure, & Construction/Construction Robotics & 3D Printing

Authors

Chris Lacny
Noah Reardon
Jiansong Zhang

Further information

Matt Halladay
MRHalladay@prf.org

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to projects with real world applications. After graduation, Christopher intends to pursue a PhD in Electrical Engineering.

Noah Reardon is a senior at Illinois Institute of Technology completing a coterminal masters degree in Mechanical and Aerospace Engineering. Noah is passionate about STEM education and has volunteered extensively, helping organize robotics competitions for FIRST and providing STEM mentorship to students from underprivileged communities through the Rainbow Push Excel Program. He has also done independent research on linear induction motors and as a result is developing a software application to do real time FEM analysis. Outside of engineering he has a passion for music and art. For work, Noah is a lab mentor at the on campus prototyping lab.

TRL: 5

Intellectual Property:

Provisional-Gov. Funding, 2020-04-07, United States

Utility-Gov. Funding, 2021-04-06, United States

CON-Gov. Funding, 2023-08-31, United States

Keywords: construction robotics system,automated building assembly,robotic construction arm,smart construction materials placement,embedded sensor construction robots,dynamic robotic control,automated roofing sheathing paneling,manufacturing robotics integration,AI powered construction robots,autonomous construction technology