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Design & Development of AGV for Enhancing Hospitality

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Abstract: *With the help of technological breakthroughs, the project introduces an ESP32-based line follower robot created especially for hospital logistics, revolutionizing supply chain management in healthcare facilities. The robot is outfitted with infrared (IR) sensors for accurate line following and an ultrasonic sensor for obstacle identification. This combination of sensors reduces the likelihood of collisions and improves operational reliability by guaranteeing safe and effective navigation across predetermined courses. Additionally, a siren and an IR sensor placed in a strategic location act as a theft deterrent by warning staff members when medical goods in the robot's basket are accessed without authorization. The ESP32 microcontroller's flexibility allows for the smooth integration of several sensors and actuators, and its wireless capabilities enable remote monitoring and control, which optimizes hospital logistics operations. All things considered, this creative approach fulfills the pressing demand for automation in healthcare logistics can enhance staff productivity and patient care by providing scalability and flexibility.*

Keywords: ESP32-based line follower robot, hospital logistics, IR sensors, ultrasonic sensor,automation, supply chain management, healthcare industry, operational efficiency

REFERENCES

[1] "Deepak Punetha, Neeraj Kumar, Vartika Mehta Development and Applications of Line Following Robot Based Health Care Management System IJARCET volume 2 issue 8 2013
[2] Mehran Pakdaman, M. Mehdi Sanaatiyan Design and Implementation of Line Follower Robot, 2009 Second International Conference on Computer and Electrical Engineering
[3] Forger, G., "Non-wire Guidance Systems Take Control of AGVs," Modern Material Handling, Borenstien, J., and Feng, L., "Measurement and Correction of Systematic Odometry Errors in Mobile Robots," IEEE Transactions on Robotics and Automation, 12, 5,869-880 (1996).
[4] Feng, L., Koren, Y., and Borenstien, J., "A Cross-Coupling Motion Controller for Mobile Robots," IEEE Journal of Control Systems, December, 35-43 (1993).
[5] SME, Safety Standard for Guided Industrial Vehicles and Automated Functions of Manned Industrial Vehicles, The American Society of Mechanical Engineers, NewYork.