

ABSTRACT

This final project proposes a solution to address inefficiencies in warehouse operations by designing and implementing an Automated Guided Vehicle (AGV) system integrated with a magnetic line-based Integrated Logistics System (ILS). The system aims to improve operational efficiency, reduce physical workload, and increase accuracy and speed in the movement of goods within the warehouse. The designed AGV uses a 16-bit magnetic sensor for precise navigation, an ultrasonic sensor for obstacle detection and collision avoidance, and is connected to a cloud database to receive commands. Although the duration of one AGV round may be slightly longer than the manual method, the overall efficiency of the staff's work increases because the system eliminates manual tasks such as moving goods and daily stock checks. The elimination of these tasks allows operators to focus on other, more valuable duties.