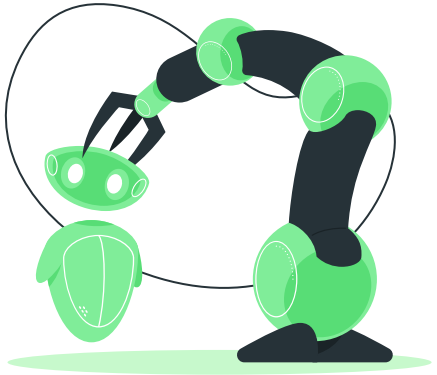
Unmanned Ground Vehicle



Group 2:

Hassan Boufares

Alif Razi

Amirul Aiman

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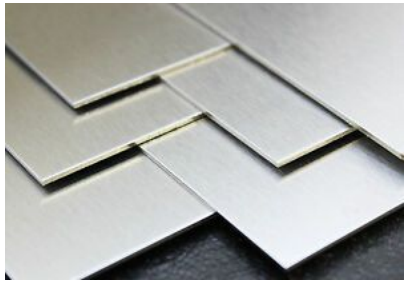
Robot Body Design

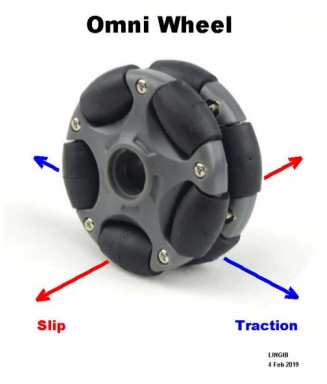


Stainless Steel

Squared shape

Actuators/ Locomotion

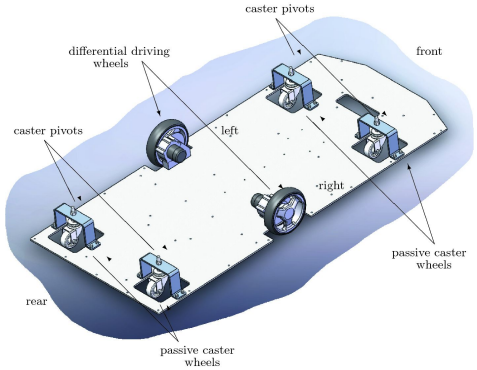
Omni Wheel



Normal Wheels

Passive Wheels

Differential configuration



Actuators/ Locomotion

Servo Motor

Stepper Motor

Mini Motor

Actuators/ Locomotion

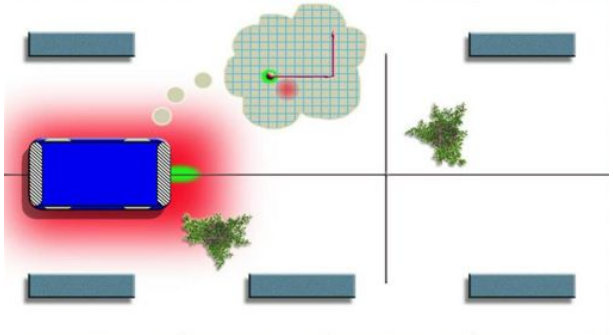
Linear Actuator

Scissor Lifting

Navigation System & Controller

Wired Navigation

- The wired sensor is placed on bottom of the AGV'S and is placed facing the ground.
- A slot is cut in the ground and a wire is placed approximately 1 inch below the ground.
- The sensors detects the radio frequency being transmitted from the wire and follows it.



Guide Tape Navigation

- The AGV is fitted with the appropriate guide sensor to follow the path of the tape.

Controller

- On-board computer and STM32 microcontroller
- Transmit environment information and control information each other.
- Main control module sends command of speed and direction to motion controllers.
- Motion controllers control motors to complete the material handling tasks.

Data Collection

Monitoring

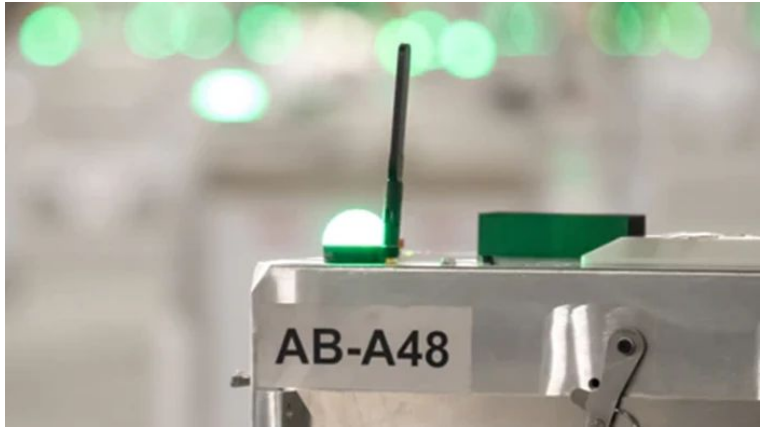
- Operator Interface
- Wifi Communication
- Display all AGV status (speed, command, Location)

Data Transmission

Long Range Wireless Fidelity (Wi-Fi)

With the mind hive as the main central controller, Ocado UGVs work as a swarm to deliver items in an area equivalent to 7 football fields.

Equipped with multiple (redundant) receiver antenna in one robot, the central controller can accurately position each robot in desired place.



Power System Management

Lithium Ion Battery

Each individual robot is equipped with onboard battery to operate with the duty cycle and service time is controlled by the AI mind hive in order to have the maximum uptime.

Any unexpected turns of event will trigger the safety warning on the mind have the faulty robot will be stopped immediately to avoid further casualties.

Thank You