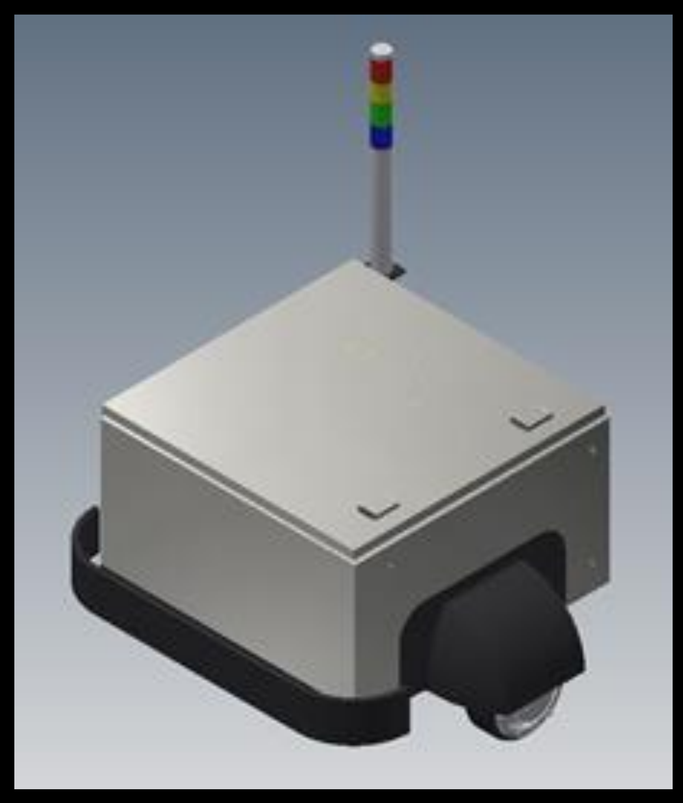
Autonomous Guided Vehicle

Industry 4.0 model factory



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Abstract

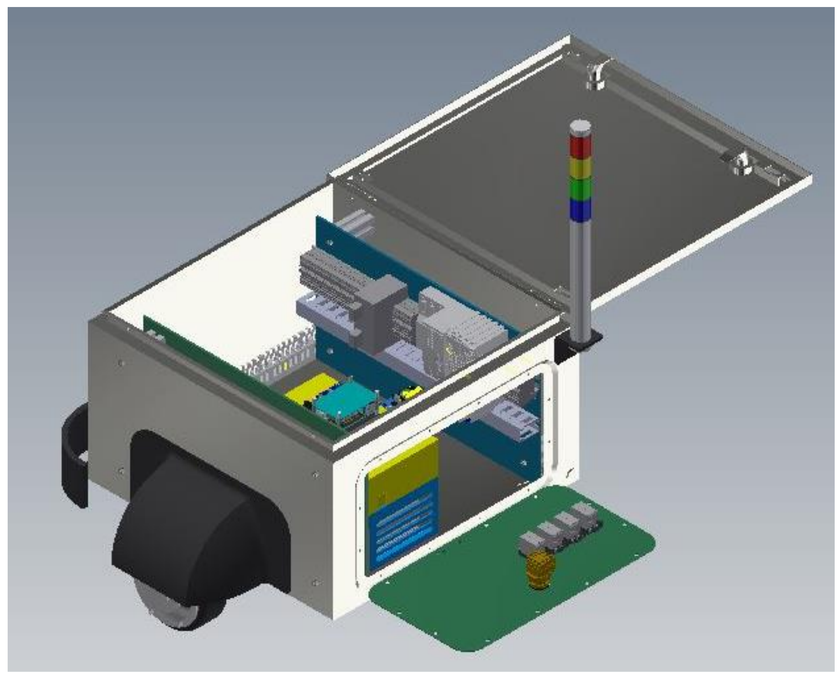
Similar to shop floor delivery in big industries such as ITEM GmbH, DHL and Amazon, frequent movement of heavy loads between workstations is needed for our model factory in IaAm institute, for which this project was started in April of 2018 to build an autonomous guided vehicle to connect warehouses, packing stations, delivery stations, etc.,

Goals of the project

- Modular design and construction of AGV for Industry 4.0 Fab to commute between various station for load carrying.
- Real time control system by using embedded controller and PLC technology, along with sensors and actuators on Low level.
- Autonomous movement and control in ROS on High level.

Realization

- Construction of mover with all the necessary parts.
- Developing Line following concept and automation concept with embedded controller and/or PLC for real time system.
- Using automotive sensors to prevent collision and fall.
- Implementing ROS using IFM Camera, LIDAR and other necessary apparatus for free navigation.
- Human Machine Interface



Rear view with maintenance hatch open

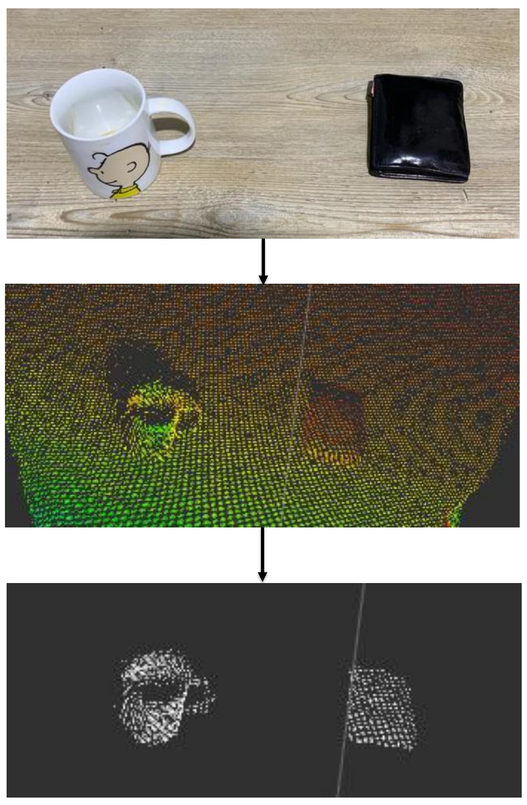
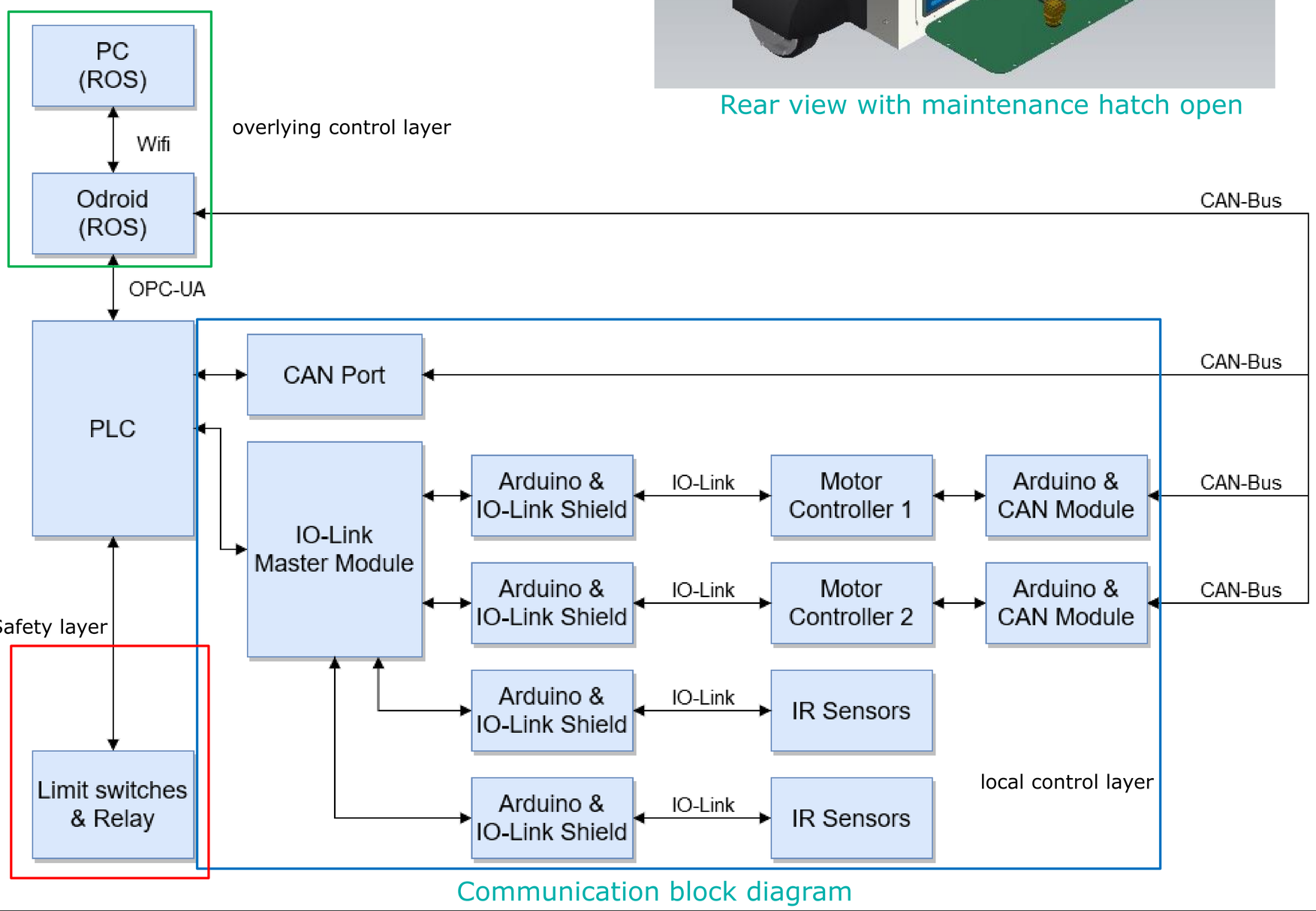


Image recording and point-cloud processing



Communication block diagram