AUTONOMOUS FARM ROBOTS

FarmX

Autonomous farm robots hold great promise to address chronic labor shortages, help conserve water and electricity, reduce the use of pesticides, and increase crop quality and yields. One of the key challenges to deploying any reliable mobile robotic system is having a reliable means of localizing the robot in the farm.

FarmX has developed a system for robot localization called Perceptive Navigation (PN) that solves problems with common approaches such as GPS and SLAM. Thanks to the AI tools provided in the Isaac ROS including GPU accelerated computer vision, deep learning, and visual odometry, FarmX can deliver the following features and benefits.

- Operations in GPS-denied environments including under dense orchard canopies
- Quick setup without surveying the environment thanks to low resolution mapping requirement.
- Localize and Detect the positions of known features (i.e., a row of vines, a tree, or a road) relative to the robot .
- Hierarchical navigation and control system that moves the robot through its environment using sequences of maneuvers
- Supports real-time route planning and obstacle avoidance.

farm(x)

WHY ISAAC ROS

"It is the breadth of NVIDIA offering that makes it the perfect fit for FarmX. From the operating environment and libraires in the Isaac ROS to the various modules that allow us to deploy on vehicles ranging from drones and large tractors, Jetson allows us to focus on developing our application and not worry about the platform."

- Dan Hennage, Vice President of Robotics at FarmX