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Robotics

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The University of Nottingham’s Centre for Plant Integrative Biology has a large automated facility dedicated to the use of CT scanning to map out the structure of plants grown under different conditions without destroying the plant. One of the robots used in this automated system is an Automatic Guided Vehicle (AGV). This robot is tasked with the job of automatically moving large cylindrical pots from storage into queue for the CT scanner.

Because the video was focused on the CT imaging technology the specs detail on the robot are not nearly ideal. Though it can be seen that it is an OCME machine the specific model cannot be found from the video nor readily available from any light searching. Therefore, the description of the robot is purely speculation using the brief description of the robot from the video and from what I can see of it.

As per the description of the robot by the researcher using this robot, this AGV is a laser guided system with fixed known physical landmarks. Special reflectors are mounted on the walls and ceiling of the storage facility. There are two laser emitters and sensors on this robot. One on top of the robot spins around to detect the landmarks so that it may localize itself by comparing the landmarks against an internal map of the facility. The researcher in the video states that the robot must detect at least 5 landmarks to localize itself. The second laser sensor is at ankle level to detect obstacles such as people. Its default action when detecting an obstacle is to simply stop until the obstacle is no longer there. This robot follows preprogrammed routes to bring research samples to and from the CT scanner room. It uses a modified forklift system to lift the plant pots from place to place. It is possible it may also have a load sensor to detect whether or not it is actually carrying a payload or if the payload is too heavy.

Source:

*3D X-Ray Images – Computerphile*. Video. Nottingham University. Dec 31, 2014.

https://youtu.be/Qrl\_\_J4vYok