



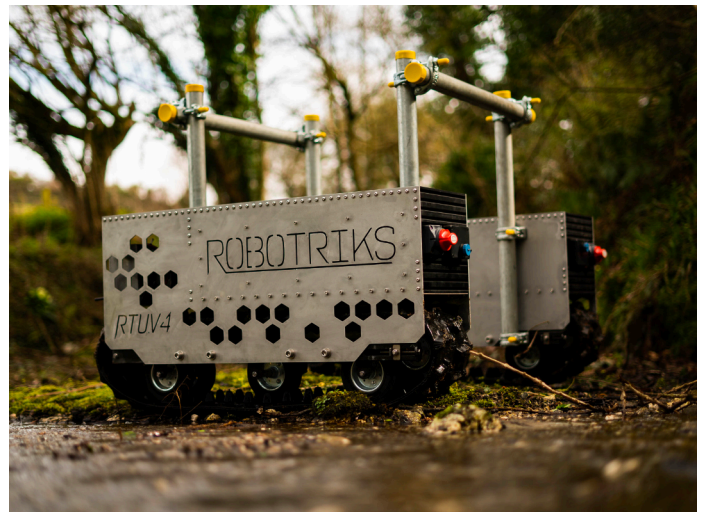
Robotriks RTU v4. Light Agricultural Robot

The RTU (Robotic Traction Unit) is an autonomous agricultural platform designed to be an adaptable platform to aid in developing agri-robotics components. It is fully open for developers to test their new technologies in the field without needing to develop their own robotic platform. This capability will help open the doors for a vast range of novel agricultural systems which maximise the benefit offered by robotics.

As a lightweight agricultural robot, the RTU represents a new approach to the farming cycle. Rather than having the size and power to pull up an entire field, light robots can conduct per-plant farming operations with minimum soil damage, maximising yields whilst minimising environmental impact.

Agri-EPIs RTU fleet have three control methods available depending on the need of the developer. At its simplest, the units can be manually controlled using an intuitive remote-control system. As a middle ground, they include an advanced autopilot system meaning the robots can drive themselves around using pre-planned routes with collision avoidance. Finally, the systems also include a powerful on-board computer running ROS, which has been configured to send control commands allowing intelligent autonomy to be quickly integrated.

These robots have also had a range of sensors integrated with them to allow for high level autonomy, mapping and collision avoidance. This includes RTK-GNSS for initial localisation, a Velodyne LiDAR for 3D point mapping and front and rear facing ZED 3D cameras for local obstacle detection.



Built almost entirely out of aluminium with mounting surfaces on the top, front and rear of the traction units, the RTU was built to last when out in the elements. Featuring a low centre of mass and a wide footprint thanks to its tracked design, the RTU can drive in any orientation on surfaces up to a 54-degree incline.

Connecting the traction units is a truss frame made entirely out of 48.3mm scaffolding pipes. By using such a standard material, it means the robot becomes very easy to configure for multiple agricultural scenarios. If a wide wheelbase is needed to cover more rows or tall frame to navigate vineyards, the truss can be simply adjusted to the requirement. With this flexibility it also broadens the realm of modularity.

These robots have been created for the needs of Agri-EPI Centre and our partners as a highly flexible and modular platform and will be gradually improved over time as a collaboration between ourselves and the manufacturer.

For information on renting out our technical assets please contact team@agri-epicentre.com.

Key benefits

Sustainable

- Fully electric
- Lightweight for low damage

Autonomous

- Simple pre-planned autonomy with object detection
- High-level autonomy with ROS compatibility

Extendable

- Open architecture for adding new sensors and end effectors

Adjustable

- Interchangeable truss frame for multiple scenarios

