



National Science Challenge Robotic Spearhead

Lincoln Agritech co-leads the National Science Challenge Robotic Spearhead project. The aim of this project is to examine how next-generation robots can work with humans in a safe and flexible manner, while preparing New Zealand's primary and manufacturing industries for a future where robotics and automation will be critical to remain competitive.

Lincoln Agritech is researching ways in which robots can safely operate in close proximity to human workers. To do this, the robots must be able to sense and identify the presence of a human.

The researchers use a combination of thermal and optical cameras to sense the robot's immediate vicinity and classify it as safe to

operate normally (no human present) or not safe for normal operation (human in the vicinity). Artificial intelligence is used to combine the sensor data from the two cameras so that safe "hot" objects can be robustly differentiated from warm bodies that indicates the presence of a human making the scene unsafe.

The interdisciplinary research programme involves robotics experts from Lincoln Agritech and Scion, as well as researchers and PhD students from the Universities of Auckland, Canterbury, Massey, Otago, Waikato, and Victoria University of Wellington.