



	2021年5月14日
	Development and Usability Test of Pesticide Spraying Robot for Greenhouse
	International Journal of Engineering Research & Technology (IJERT)
	Yuichi HASUDA, Keita HIRAYAMA ((株) テイエステック)
	<p>The purpose of this study is to introduce the development of a pesticide spraying robot to prevent the health hazards such as pesticide poisoning and heatstroke that occur during spraying pesticides in a greenhouse and to compensate the farmers' shortage due to the aging and decrease of farmers. This robot is autonomous and can be operated unmanned. It moves between ridges in the greenhouse by line traces and sprays pesticides based on the results of image recognition and measurement of the distance to crops by ultrasonic sensors. Using a CCD camera for line tracking was adopted as the driving method. The width of the robot was kept within 50 cm, so it was possible to significantly reduce costs and maintain the yield of crops without having to rebuild the fields. In addition, identifying the crops to apply pesticides by image recognition and accurately applying pesticides only to the crops, the usage of pesticides was reduced by about 42%. This has the advantage of reducing the cost of pesticides and reducing the impact of pesticides on crops. As a future improvement of the robot, we will try to reduce the cost by replacing myRIO used in the microcomputer with an inexpensive microcomputer such as Arduino. Robots have already been put in Practical use for cucumbers, white radishes, and peanuts, tomatoes, etc., but we will continue to put them into practical use for other types.</p>
	<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Pesticide application demonstration experiment in the campus field</p> </div> <div style="text-align: center;">  <p>Attempt to spray pesticides on white radish</p> </div> </div>