## KeyDevelopment Points

We have developed two types of drones: a modified X500 for autonomous flight and a modified Avata2 for remote operation. The X500 is equipped with a LiDAR sensor (Mid-360) and performs SLAM (FAST-LIO2) for self-localization. For path planning, we use SUPER. Additionally, we implemented machine learning based on YOLOv8 to automatically recognize targets in the environment using images captured by the Avata2's camera. We also developed an interface that displays each target individually.

↑X500 Kai

←Avata2 Kai
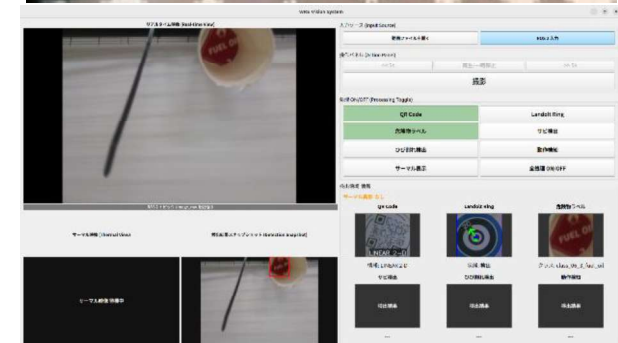
Team Introduction

【The beginning and motivation for forming the team】
Team Oshinobi also participated in the WRS2020 Fukushima competition. At that time, we entered the Plant Disaster Prevention Challenge and developed a system that mounted a snake robot on a remotely operated mobile robot. This time, we are taking on a new challenge with drones. Our team is a collaboration of three laboratories at Okayama University, specializing in rescue robots, autonomous mobile robots, and control engineering. Although we are newcomers who have only been seriously developing drones for about a year, we hope you look forward to seeing how far we can go.

【Future Outlook for the Team】
For everyday applications, we are conducting joint research with local companies to promote the use of drones in forestry in the northern area of Okayama Prefecture. Our goal is to enable autonomous drone flights in forested areas where GPS signals are unavailable, in order to collect data for assessing forest asset value, conservation, and prevention of wildlife damage. In emergencies, we also envision deploying the system as a disaster response robot.

Role	Name	Affiliation/Position	Areas of expertise, research fields
Team Leader	Yuya Shimizu	Okayama Univ. / Ph.D student	All kinds of robot development are welcome!

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Websites, etc. https://www.sys.okayama-u.ac.jp/