

## Environmental Research, Technology Demonstration and Conference Project

<b>ECF Project:</b>	ECF 2020-147
<b>Project Title:</b>	Advanced machine vision guided aquatic surface vehicles for refuse monitoring and capturing in watercourses
<b>Principal Investigator:</b>	Dr So Kwok Hay Hayden, Department of Electrical & Electronic Engineering, The University of Hong Kong
<b>Total Approved Grant:</b>	\$496,000
<b>Duration:</b>	1/5/2021 to 31/8/2023
<b>Project Status/Remarks:</b>	On-going
<b>Project Scope:</b>	<p>This project investigates and develops technologies for a system of autonomous aquatic surface vehicles (ASVs) that collectively provide real-time monitoring and capturing of floating refuse in watercourses. The overarching goals of this project are to improve quality of watercourses in Hong Kong given their urban settings, and to promote public awareness toward the problem of marine refuse, in particular regarding the challenge of ocean plastic. This project is research in nature but with a clear path to demonstrate the technology to the public as part of its public education objectives.</p> <p>In terms of research, based on the project team's early prototype, advanced machine vision algorithms for identifying and tracking of floating refuse suitable for Hong Kong's environment will be developed, which will serve as the primary input for navigation and refuse capturing. The system of ASV is expected to patrol the target watercourse semi-autonomously while collecting floating refuse as they are encountered. While patrolling, the ASVs also provide real-time reporting of the water condition, including the amount of detected refuse in and around the watercourse, as well as basic water information such as temperature and turbidity. A system prototype will be built and demonstrated to the public through the planned public engagement activities.</p>
<b>Summary of the Findings/Outcomes:</b>	To be available upon completion of the project