

## Environmental Research, Technology Demonstration and Conference Project

<b>ECF Project:</b>	ECF 2018-99
<b>Project Title:</b>	Automated airborne drone for beach wastes recycling
<b>Applicant:</b>	Professor Li, Heng, Department of Building and Real Estates, The Hong Kong Polytechnic University
<b>Total Approved Grant:</b>	\$1,213,600
<b>Duration:</b>	1/6/2019 to 30/11/2022
<b>Project Status/Remarks:</b>	On-going
<b>Project Scope:</b>	<p>This project aims to design and develop a drone-enabled recycling system for beach wastes recycling to improve recycling efficiency and cut down manpower costs. The waste collecting drone will search through a beach, when no man is detected, to collect and place beach wastes into designated bins for further processing. Specifically, the project team will develop a computer-vision based system on the drone that could identify recyclable wastes on a beach. A coverage path planning algorithm will be developed for the drone to avoid obstacles and plan its optimal path to maximise its coverage of the beach. A light weight robotic arm will be attached to the drone that can pick up the identified wastes. Experiments both in the laboratory and on real beaches will be conducted to test the feasibility and efficiency of the proposed drone system. This project could potentially help improve the efficiency of construction waste management by introducing automatic waste recycling method and benefit the Hong Kong environment in the long term.</p>
<b>Summary of the Findings/Outcomes:</b>	To be available upon completion of the project