Smart Mobile Robot System for Rubbish Collection

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Abstract. This paper records the research and procedures of developing a smart mobility robot with detection system to collect rubbish. The objective of this paper is to design a mobile robot that can detect and recognize medium-size rubbish such as drinking cans. Besides that, the objective is also to design a mobile robot with the ability to estimate the position of rubbish from the robot. In addition, the mobile robot is also able to approach the rubbish based on position of rubbish. This paper explained about the types of image processing, detection and recognition methods and image filters. This project implements RGB subtraction method as the prior system. Other than that, algorithm for distance measurement based on image plane is implemented in this project. This project is limited to use computer webcam as the sensor. Secondly, the robot is only able to approach the nearest rubbish in the same views of camera vision and any rubbish that contain RGB colour components on its body.