MICROCONTROLLER BASED WASTE SORTER WITH OBJECT DETECTION SUPPORT

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ABSTRACT

Indonesia is one of the largest waste producers in the world. Every day garbage can be found in various places for garbage that has been thrown into the trash or garbage that has not been thrown into the trash. The waste is disposed of in its place but the waste has not been separated according to its type. In general, waste is divided into 2 groups based on its nature, some are easily biodegradable (organic) such as food scraps and some are difficult to decompose (inorganic) such as plastic waste. Inorganic waste is difficult to decompose naturally, therefore inorganic waste is processed by being reused or recycled so that the impact on inorganic waste does not damage the environment. Disposal of waste according to its type is needed in order to facilitate and speed up the processing process between organic waste and inorganic waste. In this research, a tool is made that is able to detect the type of waste object and sort it according to its type. The test is carried out using 10 waste objects including organic waste and inorganic or recycled waste. This system uses YoloV3 to identify the type of waste, each sample is named according to its type. The results of the research conducted using 10 objects where the average confidence score was 0.86. This research was conducted in order to shorten the time in waste processing, especially waste sorting before the waste is collected to the final waste disposal site.

Keywords : Computer Vision, YoloV3, Object Detection, Microcontroller, Garbage Sorter