

## **ABSTRAK**

*The proposed prototype in this research is a bottle waste sorter system utilizing ultrasonic sensors and load cells to automatically classify bottles based on their dimensions and weight. The main objective of this prototype is to enhance efficiency in the plastic waste sorting process by considering both dimension and weight criteria, aiming to facilitate recycling more effectively*

*The system comprises ultrasonic sensors for measuring the dimensions of the bottles and load cells to measure their weight. Data obtained from these sensors will be processed using signal processing algorithms and microcontroller programming. As a result, bottles meeting the specified criteria will be automatically sorted, enabling a more efficient recycling process.*

*The advantages of this system include its ability to accurately identify bottles based on their dimensions and account for their weight as an additional parameter. With the implementation of this prototype, it is anticipated to enhance productivity and efficiency in plastic waste management, contributing positively to environmental conservation efforts. Furthermore, the integration of ultrasonic sensors and load cells opens up opportunities for further innovation in automated waste sorting systems.*

*The prototype design is expected to have high accuracy so to reduce the error rate in the waste sorting process. Then the prototype is also expected to be used easily because it only uses 1 power supply source which can start the system properly. As well as there are indicators related to the amount of waste making it easier for users to find out the conditions in the trash.*

**Keywords:** *Garbage Treatment, microcontroller, bottle sorter.*