

## **ABSTRACT**

*This research designs a system to estimate the size of melons using Computer Vision methods. The high production of melons requires accurate information about their size before harvesting to maximize yield. The main goal of this system is to develop a model using Mask R-CNN techniques for training data and measure object contours to estimate the size and weight of melons. The data used were collected from Puspalebo Sidoarjo and the Rooftop of Telkom University. Training results showed 24 minutes for one training session using 39 images of melons. Validation was done using 4 images with an average confidence value above 90%, and testing used 6 images with a confidence value above 90%. Evaluation showed an AP value of 84 for testing melon image estimation taken from 70 cm distance from the camera, with a diameter accuracy of 93%, length 93%, volume 82%, and mass 78%. The development of this Computer Vision system is expected to help improve agricultural management efficiency.*

**Keyword:** *Melon fruit, Computer Vision, Mask R-CNN.*