

ABSTRACT

Telkom University is one of the universities in Kabupaten Bandung that offers a beautiful green atmosphere from trees. However, the impact given is a lot of leaf waste that fall in the campus area. Leaf waste in Telkom University reaches 250 to 300 kg per day.

Currently, the janitors still use manual methods to clean leaf waste, so that makes the work posture not ergonomic and causes a risk of Musculoskeletal Disorders (MSDs). Using the Rapid Entire Body Assessment (REBA) measurement, the janitor's posture score was determined to be 8, indicating a high risk that requires investigate and implement change.

Based on the problems, a research was conducted to develop a semi-automated tool using Ergonomic Function Deployment (EFD) method to reduce the risk of Musculoskeletal Disorders (MSDs). This tool is called Leaf Vacuum 2in1, a multifunctional tool which has a vacuum feature as well as a shredder for leaf waste.

In the design process, Leaf Vacuum 2in1 considers the ergonomic principles (ENASE) and uses anthropometry data. Based on the final design of Leaf Vacuum 2in1, the janitor's work posture has a REBA score of 3, indicating a low risk and requires changes (if needed). Therefore, Leaf Vacuum 2in1 has the potential to reduce the risk of Musculoskeletal Disorders (MSDs) of janitors.

Keywords : Ergonomic Function Deployment, ENASE, leaf vacuum 2in1, Musculoskeletal Disorders, Rapid Entire Body Assessment, leaf waste