

# DEVELOPMENT OF VISUAL-BASED FLOOR CLEANING ROBOTS

by Herlambang Sigit Pramono, Sigit Yatmono, Moh. Khairudin

## ABSTRACT

A floor cleaning robot developed in 2018 has a performance capable of maneuvering automatically and semi-automatically. Robots that have been developed still leave dirt as much as approximately 20%. Robots cannot clean dirt better because they do not have the ability to recognize the remaining dirt left on the floor. For this reason, a visual-based intelligent floor cleaning robot equipped with a camera and GUI control capability was developed to detect any the remaining dirt. Research conducted by Pressman's research and development research methods which includes stages: analysis, design, implementation and testing. The robot is equipped with a GUI to recognize and track the remaining dirt and estimate the distance between the robot and the remaining dirt. This distance data is needed to regulate the speed of the robot in approaching the remaining dirt. The robot is able to estimate the distance of the robot to the remaining dirt with an error rate of 20%. The creation of a GUI to manage and display distance data and the detection of the remaining dirt is made using a Python-based program. The developed GUI was able to detect three different types of dirt, i.e sand, paper and rope based on HSV value settings. The process of setting HSV values as a basis for detecting the remaining dirt is still done manually.

Kata Kunci: *robot vacuum cleaner, Arduino, visual, Python*