REINFORCEMENT LEARNING BASED
OF FIVE LEGS ROBOT FOR RESCUE OPERATIONS

Prihastono
Bhayangkara Surabaya University and PhD Student, Sepuluh Nopember Institute of Technology
INDONESIA
prihastono@ubhara.ac.id

Dr. Son Kuswadi
Electronic Engineering Polytechnic Institute of Surabaya
INDONESIA
sonk@eepis-its.edu

Prof. Dr. Achmad Jazidie
Sepuluh Nopember Institute of Technology
INDONESIA
jazidie@ee.its.ac.id

ABSTRACT

This research developed small scale prototype five legs robot which can be used for searching victims in tsunami disaster. The robot used dc servomotor as the actuator, ultrasonic range finder, magnetic compass, and limit switch as the sensor. Remote control is used to operate the robot, and wireless camera for the visualization. To implement intelligent control system in robot which not depend on the model, both of dynamic system model and dynamic environment model, this research use "behavior based" algorithm. Learning robot ability in navigation is developed using "reinforcement learning" algorithm. Learning processes are applied by interaction between system and environment with "reward" and "punishment" rule. In this case, the environment is everything around the robot and human is one of the environment. It will be very interesting if human and robot can interact each other. Everything that human want will be understood and then will be executed by robot Three street conditions are tested for robot's performance and the result will be discussed.

Key word: five legs robot, reinforcement learning, reward and punishment.

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