PROTOTYPE DESIGN OF A WHEEL-BASED FIRE EXTINGUISHING ROBOT WITH FIRE DETECTOR SENSOR

Iqbalul Afifudin
Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : iqbal.afifudin81@gmail.com

ABSTRACT

On August 22, 2020, a fire broke out at the Attorney General's office building, which was allegedly caused by the flammable structure of the Attorney General's office building. This clearly harmed the people and the state because many items in the building were burned down, such as important documents and electronic devices. Due to the slow response to signs of fire, the spread of the fire could not be stopped immediately and consumed almost all parts of the Attorney General's office building. This kind of fire can occur in buildings or multi-storey buildings where early handling of fire risks should have been the main thing in a large construction. One of the parts of early handling is a fire sprinkler. A fire sprinkler is a water-based fire extinguishing system that has 2 main functions. namely, to detect the hot temperature that occurs due to fire, and at the same time as a direct extinguisher. However, often the execution of the fire sprinkler is not precise to one point of the location of the fire source, so that the extinguishing process is not complete and there is often still residual fire in parts that are difficult for fire sprinklers to reach, even firefighters for safety reasons. This is a weakness of fire sprinklers and requires a fire extinguishing system solution that is able to extinguish fires in hard-to-reach locations, and faces high risks. This system will be packaged in the form of a prototype design of a wheeled fire extinguisher robot with a fire detector sensor where this robot is able to detect the source of the fire with a fire sensor, direct the nozzle to the fire point according to the sensor and provide spray until the fire point is no longer detected. The results of the fire sensor test obtained a sensor success rate of 90% and a success rate for the overall system function of 100%

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