DESIGN AND BUILD OF A FIRE EXTINGUISHER PROTOTYPE BASED ON COORDINATING POINTS USING IOT BASED K-NEAREST NEIGHBOR (KNN) ALGORITHM

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ABSTRACT

Fires in warehouses and warehouses are a serious threat that can cause major losses, both in terms of property damage and safety risks for employees. In an environment, the risk of fire increases due to the large amount of flammable storage material, limited air circulation, and access constraints and low visibility. The use of conventional sprinklers to extinguish fires in burning warehouses is still not efficient in handling fires that are in narrow gaps in warehouses. Therefore, the use of automatic fire extinguishers has become an innovative solution in increasing safety and efficiency in dealing with fires in this area. Therefore, a fire extinguisher prototype was designed based on coordinate points using the K-Nearest Neighbor (KNN) algorithm based on the Internet of Things (IoT). The research results show that integration between IoT and the KNN system in automatic fire extinguishers can increase fast response through notifications on Telegram and more accurate detection of fires in warehouses and warehouses with an accuracy rate of 87.5%. In the automatic fire extinguisher prototype test, the results showed that the success percentage of the system in extinguishing fires was 81.25% while the error percentage was 18.75%.

Keywords*: Fire, Fire Extinguisher, K-Nearest Neighbor, Internet of Things*