

ABSTRACT

Radiation monitoring aims to know firsthand the rate of radiation exposure in a work area to ensure the safety and health of workers who will work in the radiation emitting area in accordance with the principle of ALARA (As Low As Reasonably Achievable).

This study developed a nature X-ray radiation measuring device using a Geiger Muller tube detector and can display the results of the measurement of numbers in microSievert units and Counter Per Minute to the LCD Character display and Android which have function to reduce the radiation exposure received by the radiation workers. The output of the detector is processed using Arduino Uno. Comparison of the results of the module with a calibrated standard survey meter measures the reference that the module can be used.

The radiation detection system testing of this module is carried out to adjust the current condition of the Covid-19 pandemic, so that the module tests the background radiation (natural radiation). Based on module testing and experiments, it was obtained that data from 10 times data collection showed the accuracy value of the radiation measuring device using a Geiger Muller detector was 90.71% for the measurement of background radiation in a closed room. The Geiger Muller detector is not accurate for measuring small radiation exposures, the module can be used to measure background radiation and fluoroscopy X-ray radiation.

Keywords: *X-rays, Geiger Muller, Arduino Uno, Android*