

ABSTRACT

The modern evolution will push the technology to make an innovation in human life. The technology expansion can give feel secure for humanity, like realization of “detection of oxygen and carbon dioxide levels in a under the ground hole microcontroller based equipment is very useful for the safety of human life.

This tools using AVR ATmega8 microcontroller with KE-50 oxygen sensor and CDM 4161A carbon dioxide. ATmega8 microcontroller can save data appropriately with its capacity and process data from analog to digital. KE-50 oxygen sensor and CDM 4161A carbon dioxide role as a main function for detect an oxygen and carbon dioxide at hole. Data transmission that used is Communications of telemetry using RF module YS-1020UA which its transmitted result will shown on LCD such as O₂ and CO₂ with classification of air quality at hole.

System design of KE-50 oxygen sensor and CDM4161A carbon dioxide will produce value of measurement that has done in five different places, such as alkil well, selamat well, cave, kost room, and chamber. From testing result at alkil well, it has an average value from oxygen level 15% and carbon dioxide 1.802ppm, at selamat well it has an average value from oxygen level 15% and carbon dioxide 1.823ppm, at cave it has an average value from oxygen level 17% and carbon dioxide 576ppm, at kost room it has an average value from oxygen level 19% and carbon dioxide 604ppm, at opened chamber it has an average value from oxygen level 17% and carbon dioxide 1.660ppm, and closed chamber it has an average value from oxygen level 13% and carbon dioxide 2.461ppm.

Keywords : ATmega8, KE-50, CDM4161A, RF Module YS1020UA, LCD