The development of wireless sensor network (Wireless Sensor Network / WSN) applications for wireless sensor networks are also increasingly diverse. The presence of this new technology make us easier to conduct environmental monitoring (environment monitoring), especially the monitoring of water quality. By applying wireless sensor networks in the water with a certain pH, then we will more easily understand the parameters of water quality, so it can produce a system that can monitor and detect water quality and know how the pollution.

In this study, wireless sensor networks is designed for monitoring and detecting the occurrence of water pollution by reading the pH of the water. In this final project, the water pH level measurement system is designed and implemented on Wireless Sensor Networks to determine water quality with a certain pH levels. System designed in accordance with the need to consider the specification of existing equipment. This implementation is done using analog to digital converter (ADC) on sensorboard MDA300CA. With a certain sampling rate of the voltage sensor for pH will be processed and then transmitted from sensor nodes to the gateway then be connected to a PC as a destination. System design was tested by giving input range of water pH. It was found that the measured voltage value is inversely proportional to pH value of water. And obtained by 0.00289596% packet loss at a distance of 5 meters, 0.010597% at a distance of 10 meters, 0.018993% at a distance of 15 meters, 0.0276206% at a distance of 20 meters, 0.032281% at a distance of 25 meters and packet loss was 0.0379765% at a distance of 30 meters from the gateway. While the Fault Tolerance of 0.003547 at a distance of 5 meters, 0.01298 at a distance of 10 meters, 15 meters at a distance of 0.023263, 0.03383 at a distance of 20 meters, 25 meters distance 0.039539pada and packet loss amounted to 0.046514 at a distance of 30 meters from the gateway.

**Keyword**: Wireless Sensor Network, ADC
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