ABSTRACT

The detection reliability of light lifetime are usually tested manually without using tools. The design of detector lifetime reliability DC light is expected to help solve this problem by using a detection system by sensor phototransistor.

The detection reliability of light lifetime can be done by taking the value of the life time data are censored light through hardware designed. The light sensor will continue to check the lighting conditions where the voltage comparison performed by LM311N to define the light conditions detected during their lives (life time). Detection is reported continuously through the data output of the comparator to a PC (Personal Computer) with serial communication using a microcontroller Basic Stamp BS2SX and MAX232. Interfacing the detection results are displayed through the Visual Basic 6.0. Approach to the analysis conducted to analyze the reliability of light lifetime is the exponential function of the probability density (Exponential Probability Density Function).

This research successfully established a set of hardware that is capable of detecting the condition of the lamplight DC in a long time with the condition remains stable. Hardware is able to communicate the condition of the lamplight DC so the PC can process an average analysis of the mean (μ), probability and reliability based on analysis of simulations with exponential distributed are processed on the software Visual Basic 6.0

Key words: Reliability of Light Life Time, The Light of Life Time, Light Detection, Exponential PDF, Exponential Distributed Analysis. Mean of Lifetime.