## Abstract

n a company in the field of building construction, in the work if you want to measure the height of a building must use a manual height gauge called Theodolite and also Waterpass, where manual height measurement using a measuring instrument with a limited measuring range can hinder the performance of building construction activities. Currently research on measuring building height is still small, some only use measuring the height of buildings only small scale. The shortcomings of the measurement tools used in the field of building construction are where the device performs measurements using a reference, namely wool or glass yarn, and also has the disadvantages of tools that are too large to be carried from one project to another. This study produced a building height measurement tool using a gyroscope, and from this study an error was obtained during the measurement. Measurements take place by measuring the height of the floor. With the following results, the first test is done by testing the 1st floor, the result of error 0cm, the second floor gets the error 0cm, the 3rd floor gets the error 0cm, the 4th floor gets the error 1.1cm, the 5th floor gets the error 17.3cm, the 6th floor get the result of error 102.4cm, the 7th floor gets an error of 80.2cm, the 8th floor gets the result of error 0cm, and the last test is done by testing the 9th floor getting an error of 305.7cm. In testing angles that have the smallest error value is to use a kalman filter, then the second with calibration, and of course that has a high error at normal angles or without filters, because at normal angles without the kalman filter.

Keywords: MPU6050, Gyroscope, Theodolite, Waterpass, Arduino Mega2560