ABSTRACT

In Building construction is an activity to build facilities and infrastructure. Distance measuring devices and tilt angle measuring devices are often used in building construction activities specifically to measure the length of objects and the distance from an object, as well as measure the angle of inclination of an object. The use of manual tools often results in inaccurate measurement results. This often happens because of the human factor that is not careful in using manual measuring tools.

Along with the development of current technology, the author will make an automatic distance and tilt angle measuring device by utilizing waves from ultrasonic sensors and accelerometers where the ultrasonic transmitter will emit ultrasonic waves which then the ultrasonic receiver will receive ultrasonic wave reflections from the reflection of objects in front of it. The design of this measuring device is controlled by the Microcontroller as a control center and manages the data that has been programmed.

At this time the author will implement a digital distance and angle measuring device using an ultrasonic sensor and an accelerometer because it is more efficient in its measurement. As well as measuring and testing tools to see the performance of the tools that have been designed to function properly. In order for the desired results to be valid, the method used is to carry out repeated measurements, for example in calculating the value of a substance in solution it is necessary to repeat measurements x times. From these data, a measured value approach is obtained through the calculation of the average of the standard deviations and the data obtained.

Keywords: *Ultrasonic Sensor, Accelerometer, Microcontroller*