

## **ABSTRACT**

### ***Design And Implementation Tilt Measuring Tool For Miter Saw Using Complementary Filter***

*The use of machine technology has penetrated various sectors of life, one of them is furniture industry sector. Furniture industry in Indonesia is an industry sector that many cultivated by businesses. Improving the quality of furniture production. To improve it, technological developments in carpentry are expected to produce a quality product, so need an effective work process.*

*Based on observations and interviews with small industries of furniture manufacturers in Semarang, errors in measurements made by cutting machine operators resulted in poor production. There are several factors that affect the production results become less good when designing wood based interior one of them human error due to errors in the observation and use of current measuring tool that is in the form of arc ruler to measure the angle of the tilt [1]. In this case there are some wooden connection angles that are most often used by the furniture industry because it has advantages that the connection angle value has a strong construction on the wooden joints and looks more presentable including angle of 45 degrees (square), 36 degrees (pentagonal) 30 degrees (hexagonal), and 22.5 degrees (octagonal).*

*The goal of this system is accurate and precise slope measurement on the tilt measuring tool on the miter saw by using the complementary filter algorithm method by utilizing microcontroller as the control center and accelerometer sensor and gyroscope sensor that serves as angle tilt sensor. With target angle offset angle value of 1 degree.*

***Keywords: furniture, complementary filter, accelerometer, gyroscope, miter saw.***