

## **ABSTRACT**

*In the contemporary era of globalization, many lathes are used in the manufacturing process. Because a lathe performs so many functions and provides so many benefits in the industry, many businesses require it. Due of the high cost of lathes, however, not all businesses can afford this machine. Furthermore, if the production floor is not wide enough to accommodate a large lathe, it would interrupt the safety of production activities. The minid lathe's design starts with calculations, which are subsequently turned into designs using SolidWorks. This study aims to design a mini lathe with specifications for the dimensions of the workpiece with a maximum diameter of 60mm and a length of 300mm, and materials used that are softer than steel, such as aluminum dural, plastic, and wood, as well as a mini lathe that is cost-effective for the middle to lower industry. Based on the data analysis practiced, it can be concluded that this mini lathe consists of the following components: table lathe, sled, DC electric motor, tail stock, spindle, drive shaft, gears, V-belt, and M16 bolt, with a required motor power of 1,642 Kwatt and an engine speed of 3200 rpm, and an estimated total cost of Rp. 2,294,000.00, making it more affordable for the lower middle class.*

*Keywords: SOLIDWORK, mini lathe.*