ABSTRACT

Microstrip antenna is one type of antenna that can be used for detection sensors. In this final project, we will use a microstrip antenna as a sensor for detecting water content in tomato seeds. The measuring tools used to measure tomato seeds are still limited. The use of microstrip antennas as sensors for detecting moisture content in seeds is still not widely found. In addition, usually people will only estimate the water content in tomato seeds just by looking at the object without knowing for sure the water content in the tomato seeds.

In this study, the antenna used is a rectangular microstrip patch antenna that works at a frequency of 3GHz. The feeding technique used is a discrete port. This antenna will be used as a sensor for detecting moisture content in tomato seeds in wet conditions, drying for the first 10 minutes to 12 and dry. The method used is to insert tomato seeds into an antenna that has been made like a cross section and is connected to a VNA (Vector Network Analyzer). The water content in tomato seeds is calculated first using the gravimetric method.

The results achieved in this study are that an antenna that works at a frequency of 3GHz has been obtained and has succeeded in distinguishing between wet seeds and dry seeds. With the curve fitting method, the equation obtained is a polynomial equation with a Sum Square of Error (SSE) value of 0.01944, an R-Square value of 0.902, and a Root Mean Square Error (RMSE) value of 0.04647.

Keywords: Mikrostrip antena, sensor, discrete port , tomato seed.