

ABSTRACT

Microstrip antenna is an antenna in the form of a thin conductor plate and consists of 3 main components, namely patch, ground and substrate. characteristics of the microstrip antenna can be used to analyze the characteristics of corn with different moisture content. The microstrip antenna made in this final project aims to determine the moisture content of corn. Previously there were already existing measuring instruments for water content in corn, but because the price was relatively expensive, there were still few corn farmers who used these measuring instruments. Measurement of water content in corn is usually carried out by laboratory measurements or visually estimated. Laboratory measurements require significant time and cost, while visual estimation does not guarantee the accuracy of the results.

In this final project, the antenna used is a microstrip with a rectangular patch working frequency of 2.5 GHz. The antenna in this final project uses a discrete port feeding technique. This antenna will be used as a sensor to detect water content in corn. With the proposed methods, it can be done by taking a sample of corn, then inserting it into the antenna that has been made and then connecting it to a Vector Network Analyzer (VNA).

After measuring the antenna, the measurement results from the corn sample can find out the amount of moisture content in the corn sample. With a working frequency of 2.5 GHz, the antenna in this study can distinguish between corn with high water content and corn with low water content. Using the curve fitting equation method, the equation obtained is a rational equation with a Sum Square of Error (SSE) value of 0.002347, an R-Square value of 0.9599, and a Root Mean Square (RMSE) value of 0.01713.

Keywords: *microstrip antenna, water content, sensor.*