

ABSTRACT

Capacitive sensor is a tool to sense electrical parameter value based on capacitive concept. Capacitive sensor works based on electric charge changes loaded in electrodes of the sensor as caused by electrode's distance changes, surface changes, and dielectric volume changes. In this research, application of capacitive sensor is analyzed to determine capacitance, permittivity, and relative permittivity of several woods in several conditions. Conditions of analyzed woods were wet, dry, and oven-heated. Inverting amplifier, rectifier, and microcontroller are used to measure output voltage of the object. Optimum voltage and frequency configuration used to measure were 1.767 Vrms and 10 kHz. Most significant changes of relative permittivity found in wet woods was $4.19233E+06$, $1.68138E+06$ for dry woods, and $7.65629E+05$ for heated woods.

Keynote : *Capacitive Sensor, inverting amplifier, rectifier, microcontroller Arduino Uno*