

ABSTRACT

In this study, researchers developed dynamic electric learning media. The development of the tool is carried out through innovation, namely the manufacture of an automatic system by designing a dynamic instrumentation-based electrical device design which uses a circuit power supply with a constant voltage state as a voltage source as well as the application of a DC voltage sensor and a current sensor as a detector of the incoming voltage and current. tool design. This study aims to understand the development of instrument-based dynamic electric concept prototypes. The design results show the readings of the series circuit using the INA219 1 sensor module with voltage measurements with an average error of 1.11% and current measurement readings with an average error of 1.45%. The design results show the parallel circuit readings using the INA219 2 sensor module with voltage measurements with an average error of 0.57% and current measurement readings with an average error of 2.11%. Voltage and current readings when charging capacitors in parallel circuits using the INA219 2 sensor module with an average error of 0.66% and 0.49%. The difference between the time constants for measuring voltage and current between the INA219 2 sensor and a multimeter is 0.04 V and 0.1 mA. The difference in the value of the circuit current between using a sensor and using an analysis is due to the tolerance value for each resistor. The difference in the measurement results by this voltage sensor can be caused by the unstable power supply of the voltage source when the measurement is carried out.

Keywords: *Arduino, Dynamic Electricity, INA219 Sensor Sensor*