

## ABSTRACT

*Pencak silat is a martial art that combines movements that can defend yourself from threats. In order to master the moves, the fighter must do the exercises. In training, there is no means that can determine the strength of a kick, especially in silat training, so there is no benchmark for the training a fighter has done in training kicks. For measuring the strength of a fighter's kick, usually it can only be felt when a fighter kicks the target.*

*Therefore, to overcome the problem, a Microcontroller-Based Kick Strength Measurement Tool was designed to monitor the development of a fighter's training. The piezoelectric sensor is used as a large pressure reading for the fighter's kick. The microcontroller uses NodeMCU which will send values to firebase. The application will display the pressure value from the sensor readings and also as input for filling in the name of the fighter and the kick technique to be performed. Furthermore, the data will be stored in a Spreadsheet to facilitate monitoring.*

*The test results from this tool show that the tool and application can work well, based on the sensor response test, the sensor can receive pressure well with an average of 539,693 Pascal. From testing the application, the features of the application in the form of login, registration and displaying the power with the output in the form of Pascal units went well. Based on the results of the measurement test by performing 3 kicking techniques by getting 18 samples, the data obtained on average, from the straight kick experiment of 541,672 Pascal, from the sickle kick experiment of 557,963 Pascal, from the T kick experiment of 519,442 Pascal. From the monitoring database test, the spreadsheet can display data in the form of the name of the fighter, the type of kick technique and the magnitude of the kick strength properly.*

**Keywords:** *pencak silat, piezoelektrik, NodeMCU, android.*