

ABSTRACT

Heart rate of the fetal is the main indicator of the fetal life in the womb. Monitoring fetal heart rate can't be done, so a tool is needed to monitoring fetal heart rate. Fetal heart rate can be monitored with fetal doppler. To test the accuracy of Fetal Doppler, a calibration is needed with the Fetal Doppler Simulator. This tool will simulate the fetal heart rate with a BPM value that can be adjusted according to the settings on the device. This module using Arduino as the brain system. On the module there is a selection of BPM from 60 to 240 BPM with an increase of 30 BPM displayed on 2x16 character LCDs. Based on BPM measurement 6 times using Fetal Doppler, the measurement error in a BPM of 60 to BPM 210 is 0%, while at BPM 240 an error is 0.2%. This module has been compared with the standard devices (Fetal Simulator Brand Fluke Biomedical Ps320), the results of the comparison modules with the comparison tool has the same error value in 240 BPM is 0.2% and in BPM 210 there is a difference in the result of module Fetal Doppler reading of 210 BPM while in the comparison tool is 209 BPM. Of the measurement data and analysis, it can be concluded that the tool can work and the tool has the same accuracy as the standard device.

Keywords: *Fetal Heart Rate, BPM, Fetal Doppler Simulator*