

ABSTRACT

In performing the calibration of the sphygmomanometer, the officer needs to first reset the installation and pump the bulb slowly until it reaches the set point in accordance with the calibration settings where this does not provide convenience to the calibration officer. So, the author wants to do research on making additional devices to support DPM calibration instruments that have been commercialized to speed up the pump process in Sphygmomanometer calibration. The purpose of this research is to make an Automatic Pump module with PID control to analyze the stability of the pressure achievement in accordance with the set point when using the smoothing program or not. This study used set points of 50, 100, 150, 200, and 250 mmHg. Data retrieval was carried out within 260 seconds at each set point at the Electronics Laboratory of the Health Polytechnic of the Ministry of Health, Surabaya. The results of this study indicate that the tool testing using the smoothing program experienced small oscillations compared to the program without smoothing. The data obtained is at the setting of 50

mmHg overshoot reaches a value of 54 mmHg and undershoot at 49 mmHg; at the setting of 100 mmHg overshoot reaches a value of 109 mmHg and undershoot at 99 mmHg; at the setting of 150 mmHg overshoot reaches a value of 156 mmHg and undershoot at 149 mmHg; at 200 mmHg overshoot setting reached a value of 206 mmHg and undershoot at 196 mmHg; at setting 250 mmHg overshoot reached a value of 253 mmHg and undershoot at 247 mmHg. From the data that has been obtained, it can be concluded that the Automatic Pump module with PID control is already fairly stable with additional smoothing programs. The importance of this device is made in order to facilitate and speed up calibration officers in calibrating the Sphygmomanometer.

Keywords— Sphygmomanometer; Calibration; PID; Pump