ABSTRACT

In terms of water use, sometimes users are unable to control water use and also the lack of knowledge that some users have to read the current water meter while monitoring it, causing water bills that can increase at the end of the month, such as in the Bandung Regency area. The goal to be achieved in completing the solution is to reduce the burden on PDAM customer bills, save time and make it easier for technicians to repair leaky PDAM water pipes, reduce damage, due to guesswork at PDAM water pipe repairs. The sound sensor has a fairly high sensitivity and can accurately detect sound from a frequency of 0 – 100 dB and the *Gyroscope* has an Output in the form of angular velocity from the 3-axis direction, namely: the x-axis which will be the phi (right and left) angle from the y-axis to the theta angle (up and down), and the z-axis being the angle psi (front and back). Based on the calibration results of the FC-04 Sound Sensor, it was found that the FC-04 Sound Sensor was able to detect the sound of pipe leaks without cement barriers to pipe prototypes with a cement thickness of 6 cm. For the prototype pipe with a cement thickness of 7 and 8 cm so that the pipe does not leak without obstacles the FC-04 sound cement sensor is unable to detect it. The results of the defuzzification are accompanied by a status scenario of "leak and no leak", "low and high" leak rate, value, number of steps that work according to the conditions detected. Fuzzy calculations on the tool for detecting pipe prototype leaks reach 100% so as to produce the appropriate response input *Out*put. QoS throughput, packet loss, delay and jitter testing uses the ITU-T G1010 standard.

Keywords: PDAM, FC-04 Sensor, *Gyroscope* Sensor, Fuzzy Mamdani, Pipe Prototype