

DESIGN OF WATER FLOW MONITORING SYSTEM AND REMOTE CONTROL VALVE WITH ANDROID- BASED INTERNET OF THINGS TECHNOLOGY

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ABSTRACT

The need for water is very important for the community so that in parts of Indonesia water distribution uses water meter technology. However, the water meter is still manual, so officials have to go to the location to control the water discharge for each resident. Another problem is that there are people who harm residents by turning off ball valves that don't belong to them. It is known that there is fraud that causes water bills to swell. So this research designed a water flow monitoring system design and remote control valve. This system is designed using Internet of Things technology, arduino uno wifi R3, water flow sensors, and servo motors in valve control. From the test results, it was found that the initial debit amount was 1.68 L/s and the final discharge was 9.36 L/s so that a meter difference of 7.68 L was found which had an average of 1.5 L. The highest difference amount was 2.00 L and the lowest was 1.20 L. the highest accuracy is 98% and the lowest is 81% so that a total accuracy of 99% is obtained which indicates an accurate system. The servo motor test obtained a reading speed of 10 S with a wifi distance of 5 M so that the wifi distance affects data reading.

Keywords: System monitoring and control, Arduino uno wifi R3, Water flow, Servo motor, Valve, Internet of Things.

RANCANG BANGUN SISTEM MONITORING WATER FLOW DAN KONTROL VALVE JARAK JAUH DENGAN TEKNOLOGI *INTERNET OF THINGS* BERBASIS ANDROID

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ABSTRAK

Kebutuhan air sangatlah penting bagi masyarakat sehingga di sebagian wilayah Indonesia distribusi air menggunakan teknologi meteran air. Namun, meteran air masih manual sehingga petugas harus mendatangi lokasi untuk mengontrol debit air setiap warga. Permasalahan lain adanya oknum yang merugikan warga dengan mematikan *ball valve* yang bukan miliknya. Hal tersebut diketahui adanya kecurangan yang menyebabkan tagihan air membengkak. Maka penelitian ini merancang sebuah rancang bangun sistem monitoring *water flow* dan kontrol *valve* jarak jauh. Sistem ini dirancang menggunakan teknologi *Internet of Things*, arduino uno wifi R3, sensor *water flow*, dan motor servo dalam pengontrolan *valve*. Dari hasil pengujian ditemukan jumlah debit awal 1.68 L/s dan debit akhir 9.36 L/s sehingga ditemukan selisih meter sebesar 7.68 L yang mempunyai rata-rata 1.5 L. Hasil jumlah selisih paling tinggi dengan nilai 2.00 L dan paling rendah 1.20 L. Maka didapatkan akurasi tertinggi sebesar 98% dan terendah 81% sehingga di dapatkan jumlah total akurasi 99% yang menyatakan sistem akurat. Adapun pengujian motor servo didapatkan kecepatan membaca 10 S dengan jarak wifi 5 M sehingga jarak wifi mempengaruhi dalam pembacaan data.

Kata Kunci: Sistem monitoring dan kontrol, Arduino uno wifi R3, *Water flow*, Motor servo, *Valve*, *Internet of Things*.