

## ABSTRAK

### RANCANG BANGUN WASTAFEL CUCI TANGAN OTOMATIS MENGUNAKAN SENSOR ULTRASONIK BERBASIS ARDUINO UNO

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(Rina Nopiyanti, 2025:110)

Aktivitas mencuci tangan menjadi salah satu langkah penting untuk menjaga kebersihan dan mencegah penyebaran kuman maupun virus. Penelitian ini bertujuan untuk merancang dan membuat wastafel cuci tangan otomatis menggunakan sensor ultrasonik berbasis Arduino Uno yang dapat mengalirkan air dan sabun tanpa perlu sentuhan langsung pada keran. Sistem dirancang menggunakan tiga sensor ultrasonik, sensor pertama mendeteksi tangan untuk mengaktifkan pompa air, sensor kedua mengaktifkan pompa sabun, dan sensor ketiga mendeteksi *level* ketinggian air pada tempat penampungan. Hasil pengujian menunjukkan alat dapat bekerja sesuai parameter yang ditetapkan, sensor ultrasonik pertama dan kedua mampu mendeteksi jarak tangan hingga 8 cm, indikator LED berfungsi sesuai *level* air, dan pompa bekerja otomatis dengan suplai tegangan stabil 12V. Sistem juga dilengkapi daya cadangan agar tetap berfungsi saat listrik padam. Wastafel ini diharapkan dapat membantu mengurangi risiko penularan penyakit dan mendukung kebiasaan hidup bersih di berbagai lingkungan.

**Kata Kunci:** Wastafel otomatis, Sensor ultrasonik, Arduino Uno, Pompa air, Pompa sabun.

## **ABSTRACT**

### ***DESIGN OF AUTOMATIC HAND WASHING SINK USING ULTRASONIC SENSOR BASED ON ARDUINO UNO***

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(Rina Nopiyanti, 2025:110)

*The activity of washing hands is one of the important steps to maintain cleanliness and prevent the spread of germs and viruses. This research aims to design and build an automatic hand washing sink using Arduino Uno-based ultrasonic sensors that can drain water and soap without the need for direct touch on the tap. The system is designed using three ultrasonic sensors, the first sensor detects hands to activate the water pump, the second sensor activates the soap pump, and the third sensor detects the water level in the shelter. The test results show that the device can work according to the set parameters, the first and second ultrasonic sensors are able to detect hand distance up to 8 cm, the LED indicator functions according to the water level, and the pump works automatically with a stable 12V voltage supply. The system is also equipped with backup power to keep it functioning during power outages. The sink is expected to help reduce the risk of disease transmission and support clean living habits in various environments.*

**Keywords:** *Automatic sink, Ultrasonic sensor, Arduino Uno, Water pump, Soap pump.*