DESIGNING AND DEVELOPING A DIGITAL WEIGHING SCALE FOR LAUNDRY BUSINESS APPLICATIONS

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ABSTRACT

As lifestyles continue to evolve, time efficiency has become a priority in daily routines, prompting both urban and rural communities to increasingly rely on laundry services. The laundry industry has experienced rapid growth, from conventional services to self-service and coin-operated systems. However, many laundry operations still rely on manual methods for inputting data into receipts or tablets before printing, which reduces efficiency. In response to this challenge, this study presents the design and development of a digital weighing scale integrated with a thermal printer for streamlined operation in laundry businesses. After testing, the digital scale showed an average error rate of 1.33% for a 3 kg load and 0.49% for a 5.1 kg load. The corresponding price discrepancies were approximately IDR 200 for 3 kg and between IDR 100–150 for 5.1 kg. The scale achieved an average accuracy of 98.67% for 3 kg and 99.51% for 5.1 kg. These results suggest that as the load increases, the error percentage and price deviation decrease, making the digital scale a reliable tool for commercial laundry operations.

Keywords: Laundry, digital weighing scale, thermal printer.