

ABSTRAK
RANCANG BANGUN ALAT PENIMBANG DIGITAL BERBASIS
INTERNET OF THINGS PADA PRODUK KERIPIK

Rizka Paradita : 57 Halaman

Penimbangan bahan secara akurat merupakan tahap penting dalam produksi makanan ringan seperti keripik. Ketelitian dalam menimbang memengaruhi konsistensi rasa, kualitas produk, serta efisiensi penggunaan bahan baku, baik pada industri kecil maupun rumah tangga. Namun, UMKM masih banyak menggunakan metode manual yang cenderung lambat, kurang akurat, dan menyulitkan pencatatan data. Untuk mengatasi masalah tersebut, penelitian ini merancang alat penimbang digital berbasis Internet of Things (IoT) yang bekerja otomatis dan dapat dipantau jarak jauh. Sistem menggunakan mikrokontroler ESP32 sebagai pusat kendali, sensor load cell untuk mendeteksi berat, LCD sebagai tampilan lokal, dan bot Telegram sebagai media pelaporan berbasis cloud. Alat ini memungkinkan pengguna melihat berat langsung di LCD serta menerima notifikasi dan data penimbangan real-time melalui Telegram. Hasil pengujian menunjukkan alat mampu memberikan pembacaan berat secara akurat dan stabil, bahkan dalam pengujian berulang. Sistem pengiriman data melalui IoT juga berjalan responsif, memudahkan pemantauan dari jarak jauh. Dengan keunggulan tersebut, alat ini berpotensi besar mendukung proses produksi UMKM dan mendorong digitalisasi industri makanan ringan secara lebih efisien, modern, dan terukur.

Kata Kunci: Penimbang Digital, ESP32, Keripik, Load Cell, IoT, Telegram.

ABSTRACT
***AUTOMATIC OIL DRAINER BASED ON INTERNET OF THINGS FOR
CHIPS PRODUCTION IN MSME INDUSTRY***

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Accurate material weighing is a crucial step in the production of snacks such as chips. Precision in weighing affects not only taste consistency and product quality but also the efficiency of raw material usage in both small-scale industries and home-based businesses. However, many MSMEs (Micro, Small, and Medium Enterprises) still rely on manual weighing methods, which tend to be slow, less accurate, and difficult for data recording. To address this issue, this study designs a digital weighing device based on the Internet of Things (IoT) that operates automatically and can be monitored remotely. The system uses an ESP32 microcontroller as the control center, a load cell sensor for accurate weight detection, an LCD for local display, and a Telegram bot for cloud-based reporting. This device allows users to view weight data directly on the LCD and receive real-time notifications and weighing data through the Telegram application. Test results show that the device provides accurate and stable weight readings, even during repeated trials. The IoT-based data transmission also runs responsively, enabling remote monitoring. With these advantages, the device has great potential to support MSME production processes and promote the digitalization of the snack industry in a more efficient, modern, and measurable way.

Keywords: Digital Weighing, ESP32, Chips, Load Cell, IoT, Telegram