ABSTRAK

RANCANG BANGUN PERANGKAT LUNAK DISPENSER OBAT OTOMATIS DAN *WEARABLE NOTIFIER* BERBASIS *INTERNET OF THINGS* (IoT) UNTUK PASIEN DEMENSIA
(2025:XV + 62 HALAMAN + 36 GAMBAR + 6 TABEL + 7 LAMPIRAN)

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Penderita demensia sering kesulitan mengingat jadwal minum obat, yang dapat memengaruhi efektivitas pengobatan. Untuk mengatasi hal ini, dirancang Dispenser Obat Otomatis dan *Wearable Notifier* Berbasis *Internet of Things (IoT)* menggunakan ESP32 sebagai mikrokontroler, *Network Time Protocol (NTP)* untuk sinkronisasi waktu, dan *Telegram* sebagai media notifikasi. Sistem ini mengeluarkan obat secara otomatis sesuai jadwal yang diatur melalui aplikasi *IoT*, serta memberikan pengingat melalui *Wearable Notifier* yang bergetar atau bersuara. Notifikasi juga dikirim ke *Telegram* untuk memudahkan pemantauan oleh pengasuh atau keluarga. Pengujian menunjukkan sistem bekerja akurat berkat penggunaan *NTP* dan notifikasi *Telegram* yang andal. Pemanfaatan ESP32 memungkinkan integrasi *IoT* yang efisien. Alat ini diharapkan membantu pasien demensia lebih teratur minum obat, meningkatkan efektivitas pengobatan, dan mengurangi risiko kelupaan.

Kata Kunci: Dispenser Obat Otomatis, *Wearable Notifier*, *IoT*, *ESP32*, *NTP*, *Telegram,* Demensia.

ABSTRACK

DESIGN OF AN AUTOMATIC SOFTWARE MEDICATION DISPENSER AND WEARABLE NOTIFIER BASED ON INTERNET OF THINGS (IoT) FOR DEMENTIA PATIENTS
(2025:XV + 62 PAGES + 36 IMAGES + 6 TABELS + 7 ATTCHMENST)

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Patients with dementia often have difficulty remembering medication schedules, which can affect the effectiveness of treatment. To address this issue, a Smart Medication Dispenser and Wearable Notifier Based on the Internet of Things (IoT) was designed using ESP32 as the microcontroller, Network Time Protocol (NTP) for accurate time synchronization, and Telegram as the notification platform. This system automatically dispenses medication according to a schedule set through an IoT application and provides reminders through a Wearable Notifier that vibrates or emits sound. Notifications are also sent to Telegram to facilitate monitoring by caregivers or family members. Testing shows that the system operates accurately due to the use of NTP and reliable notifications through Telegram. The utilization of ESP32 enables efficient IoT integration. This device is expected to help dementia patients maintain a regular medication routine, improve treatment effectiveness, and reduce the risk of missed doses.

Keywords: *Smart Medication Dispenser, Wearable Notifier, IoT, ESP32, NTP, Telegram, Dementia.*