

**PENGEMBANGAN SISTEM KEAMANAN KOTAK AMAL MASJID
TERINTEGRASI IOT DENGAN SENSOR DAN NOTIFIKASI
TELEGRAM**

*Development of Iot-Integrated Mosque Charity Box Security System with Sensors
and Telegram Notification*

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ABSTRACT

Mosques often use donation boxes to collect funds, but their conventional security systems are vulnerable to theft. This research aims to develop an Internet of Things (IoT)-based security system for mosque donation boxes, integrated with various sensors and real-time notifications via Telegram. The system uses a fingerprint sensor for authentication, a solenoid lock for securing the box, a vibration sensor to detect forced movements, a buzzer as an alarm, an ESP32-Cam to capture images of the perpetrator, a GPS sensor for location tracking, and an ultrasonic sensor to detect when the box is full. The WEMOS D1 R32 microcontroller controls the entire system, which is programmed using Arduino IDE. When suspicious movement is detected, the system activates the buzzer, takes a photo, sends the location via GPS, and sends a notification through Telegram. The fingerprint sensor is used to open the donation box. The system operates on a 1000 mAh battery, which lasts for 2 hours, and has a WiFi range of up to 1.5 meters. The goal of this system is to reduce theft of donation boxes, provide quick responses to theft attempts, and assist mosque administrators in efficient monitoring.

Keywords: *IoT, Mosque Charity Box, Security System, Sensor, Telegram*