



**REPURPOSING LEGACY SMARTPHONES:
AN INNOVATIVE FOR PORTABLE CCTV**

UNDERGRADUATE THESIS
Submitted as one of the requirements to obtain
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CIKARANG, BEKASI, INDONESIA
DECEMBER 2023

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ABSTRACT

In a technological era marked by rapid obsolescence, this project focused on transforming retired smartphones into functional Closed-Circuit Television (CCTV) cameras, the initiative taps into the untapped potential within these devices, leveraging built-in cameras, sensors, and connectivity features. The project's fundamental goal is twofold: mitigating electronic waste and offering a cost-effective, sustainable alternative for bolstering security. The application empowers users to convert old smartphones into active CCTV cameras, creating a comprehensive and easily manageable surveillance network. Beyond individual security, the initiative aims for broader societal impacts, including reduced electronic waste, heightened accessibility to sustainable security, and fostering a collective commitment to environmental stewardship.

The project addresses the shortened smartphone lifecycle prevalent in today's tech-driven society, driven by factors like rapid advancements and battery degradation. It seeks to alleviate associated issues, such as electronic waste, by providing a solution that extends smartphone usability and aligns with environmentally conscious practices. The application's objectives include creating an easily installable CCTV system, enhancing security for homes and small businesses, and eliminating the need for additional expenditures on conventional CCTV systems. Implemented using Agile methodology, the project ensures flexibility, adaptability, and customer satisfaction in the development process, leading to a future-rich application with real-time streaming, multiple connections, recording capabilities, QR code scanning, and speaker access.

The project's scope covers features such as real-time recordings, simultaneous monitoring of multiple CCTV cameras, saving recordings to the user's smartphone memory, and QR scan functionality. However, limitations include the inability to control camera movement, a constant requirement for a power source, and variations in camera quality based on individual smartphone specifications. In the final project outline, five chapters detail the background, literature review, system analysis, system design, and a conclusion with future work. The comprehensive approach to repurposing legacy smartphones not only addresses current technological challenges but paves the way for sustainable, accessible, and innovative security solutions.

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