



FINAL YEAR PROJECT REPORT

INTELLIGENT WASTE MONITORING SYSTEM

**In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)**

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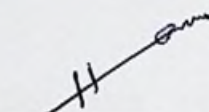
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FALL-2024

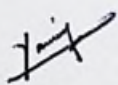
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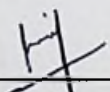
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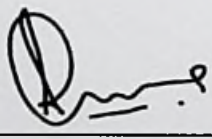
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APPROVAL FOR SUBMISSION

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ACKNOWLEDGEMENTS

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express my gratitude to my project supervisor, Miss Amna Iftikhar for her invaluable advice, guidance and her enormous patience throughout the development of the research.

In addition, we would also like to express our gratitude to our loving parents and friends who have helped and given us encouragement.

INTELLIGENT WASTE MONITORING SYSTEM

ABSTRACT

This project leverages computer vision for material classification, promoting sustainable practices and incentivizing user participation. Using YOLOv11, a state-of-the-art object detection model with 75% accuracy in identifying materials like metal and plastic, it ensures reliability through a well-annotated Roboflow dataset. The system features a Flutter-based mobile app and a MERN stack web app, with MongoDB as the database backbone. Users can capture images via the mobile app, which transmits them to the classification model for inference, displaying results like material details and unit breakdowns. The web app provides analytics, including classification percentages and user contributions. A unique point-based reward system encourages user engagement, offering redeemable points for recycling activities. By integrating machine learning, cross-platform development, and incentives, this scalable solution addresses waste management challenges and promotes environmental awareness in daily life.

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