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| **FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)** | | |
| **DEPARTMENT OF COMPUTER APPLICATIONS** | | |
| **MAIN PROJECT**  **SCRUM BOOK** | | |
| **Name of the Student: NIMMY ROSE VINSON** | **Roll No:23** | **Batch: B** |
| **Email ID: nimmyrose206@gmail.com**  **Name of the Guide: MR. NITHIN RAJAN** |  | |
| **Name of the Scrum Master: DR. SANTHOSH KOTTAM**  **Project Title: PLASTIC WASTE CALCULATOR AND RECYCLING GUIDE**  **GitHub ID:** [**https://github.com/nimmyroz06**](https://github.com/nimmyroz06) | | |

**Sprint Release 1:**

**Date:18-2-2025**

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| **Description of Work:** |
| The Plastic Waste Classification System is an advanced waste management solution developed using the MERN (MongoDB, Express.js, React.js, Node.js) stack, integrated with Convolutional Neural Networks (CNNs) to enhance the efficiency of plastic waste segregation. The platform allows users to upload images of plastic waste, which are analyzed by an AI model to determine whether the waste is recyclable or non-recyclable, thereby promoting sustainable waste management and reducing environmental impact.  The development of the system began with secure user authentication using JWT, ensuring role-based access for users and administrators. The frontend, built with React.js, provides an intuitive interface where users can upload plastic waste images for classification. These images are stored in MongoDB and processed through the backend, managed via Express.js and Node.js.  One of the core features of this system is its CNN-based plastic waste classification model. The AI model, developed using Python with TensorFlow/Keras, processes the uploaded images and classifies them based on features such as texture, shape, and material composition. The system provides real-time classification results and offers recommendations on proper disposal or recycling methods. Additionally, the platform can be extended to assist waste management authorities by offering data insights on plastic waste distribution. |
| **Remarks:** |

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**Sprint Release 2:**

**Date:18-2-2025**

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| **Description of Work:** |
| To enhance waste management efficiency, the Plastic Waste Classification System integrates ML-driven classification to help users and recycling organizations accurately segregate plastic waste. The platform leverages Convolutional Neural Networks (CNNs) to analyze uploaded plastic waste images and determine whether they are recyclable or non-recyclable.  The system incorporates an ML-powered recommendation module that suggests proper disposal or recycling methods based on classification results. Additionally, a data analytics dashboard provides insights into plastic waste count, and Nearby Recycling Center Locator is a feature that helps users find the closest recycling centers based on their current location. |
| **Remarks:** |

**Name and Signature of the Guide Name and Signature of the Scrum Master**

**Date:**

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| **DETAILS OF VERSIONS** |
| **GitHub Repository:** [**https://github.com/nimmyroz06/main\_project**](https://github.com/nimmyroz06/main_project)  **Version:** 1.0.0 - Initial Release **Sprint Time:** Sprint 1 (2 weeks)  **Push Description:**  Initialized project topic and obtained approval – Selected "Plastic Waste Classification System" as the project topic, focusing on AI-driven plastic waste identification, recyclability detection, and smart waste management recommendations. The system utilizes Convolutional Neural Networks (CNNs) to classify uploaded plastic waste images as recyclable or non-recyclable, aiding in efficient waste segregation. The idea was presented to the project guide, received approval, and planned research on existing waste classification methods and recycling technologies for the next sprint.  **Features:**   * **ML-Based Plastic Waste Detection** * **Real-Time Image Analysis** * **Nearby Recycling Center Suggestions** * **Waste Analytics Dashboard** |

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