

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELAGAVI**



**A PROJECT REPORT ON
“MACHINE LEARNING AND IoT BASED WASTE
MANAGEMENT MODEL”**

Submitted in partial fulfillment for the award of Degree of

**BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING**

By

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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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2023-24

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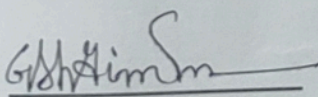


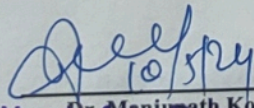
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
CERTIFICATE

This is to certify that the project entitled **"MACHINE LEARNING AND IoT BASED WASTE MANAGEMENT MODEL"** has been successfully completed by


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the bonafide students of DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2023-24. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project Work prescribed for the Bachelor of Engineering Degree.


Dr. G Srinivasan
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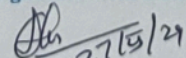
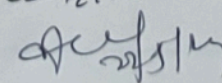
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Signature with Date


27/5/24

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

DECLARATION

We,

PAVAN KUMAR V

PRUTHVIRAJ K L

RACHITH M R

RAHUL

hereby declare that the dissertation entitled **“MACHINE LEARNING AND IoT BASED WASTE MANAGEMENT MODEL ”** is completed and written by us under the supervision of our guide **Dr. G Srinivasan**, Professor, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, in partial fulfillment of requirements for the award of the degree **BACHELOR OF ENGINEERING** in **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the academic year 2023- 24. The dissertation report is original and it has not been submitted for any other degree in any university.

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ABSTRACT

Our innovative waste management model harnesses the power of both machine learning (ML) and Internet of Things (IoT) technologies to revolutionize traditional waste management practices. Conventional waste management systems often grapple with inefficiencies stemming from a lack of real-time data, resulting in less than optimal resource distribution and negative environmental impacts. To overcome these challenges, our approach seamlessly integrates IoT sensors with ML algorithms, offering a dynamic and data-centric solution. By strategically deploying IoT sensors across waste collection points, we enable the continuous collection of real-time data on various parameters such as waste levels, composition. This wealth of data serves as the foundation for our ML algorithms, which analyse and interpret the information to derive actionable insights. One key aspect of our model lies in its ability. By leveraging ML algorithms, we can sort the waste into different categories, thereby minimizing pollution, and greenhouse gas emissions. Additionally, our model can accurately predict fill levels at collection points, allowing waste management authorities to schedule collections more efficiently, avoiding both overfilling and unnecessary pickups. By analyzing historical data and trends, we can anticipate fluctuations in waste volume, enabling proactive planning and resource allocation. This foresight empowers waste management authorities to adapt their strategies accordingly, ensuring optimal utilization of resources and minimizing environmental impact. Through extensive simulations and real-world deployments, our model has demonstrated remarkable improvements in waste management efficiency, resource utilization, and environmental sustainability. By harnessing the synergy between ML and IoT technologies, our approach represents a significant step forward in modernizing waste management practices and building a cleaner, more sustainable future.