VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON
"REAL TIME OBJECT DETECTION AND TRACKING"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
Submitted By

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Under the Guidance of
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DEPARMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(Unit of Alva's Education Foundation (R), Moodbidri)
Affiliated to Visvesvaraya Technological University, Belagavi &
Approved by AICTE, New Delhi. Recognized by Government of Karnataka.
Accredited by NAAC with A+ Grade
Shobhavana Campus, MIJAR-574225, Moodbidri, D.K., Karnataka
2023-2024

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

CERTIFICATE

Certified that the project work entitled **"REAL TIME OBJECT DETECTION AND TRACKING"** is a bonafide work carried out by

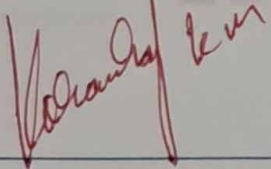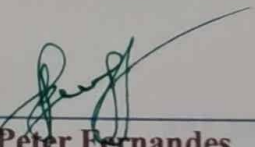|	
B R SUHAAG	**4AL20AI008**
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in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–2024. 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.
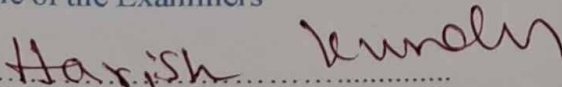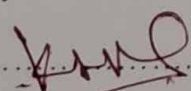
21/05/2024

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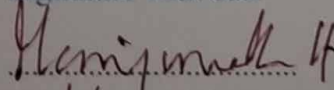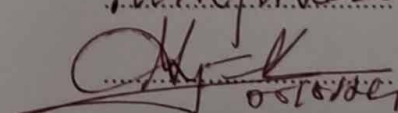
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Name of the Examiners   Signature with date

1. Harish Kundar

2.

28/05/2024

ABSTRACT

The main idea of this project is to combine the SSD MobileNetV2 model-based Jetson-inference framework with NVIDIA's Jetson Nano-powered mobile robotics platform Jetbot to achieve effective object tracking and detection. By utilizing the model's speed and accuracy for real-time object detection tasks, the system seeks to monitor and recognize things in its surroundings with minimal latency and high precision. Pre-trained weights for the SSD MobileNetV2 model are used via a pipeline that includes data collection, model training, inference, and motor control. These weights may be adjusted on certain datasets to better suit the application domain. On the Jetson Nano, real-time inference enables quick object identification and classification, while object tracking algorithms preserve frame continuity for efficient object movement tracking. The system's practical application in diverse situations is demonstrated by experimental validation, highlighting its potential for tasks like navigation, surveillance, and human-robot interaction. This progresses the field of autonomous systems and robotics.