PROJECT REPORT

On

PIXELPROWL

Submitted in partial fulfillment for the award of

BACHELOR OF TECHNOLOGY

In

Computer Science & Engineering (2024)

By

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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING
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CERTIFICATE

It is Certified that the project entitled "PIXELPROWL" submitted by Mohd Waiz Zaidi (2000102740), Mohd Zain Farooqui (2000102615), Suhail Ahmad (2000101206) in the partial fulfilment of the requirements for the award of the degree of Bachelor of Technology (CSE) Integral University, Lucknow (INDIA), is a record of students' own work carried under supervision and guidance of Ms.Anum Kamal. The project report embodies results of original work and studies carried out by students and the contents do not forms the basis for the award of any other degree to the candidate or to anybody else.

Ms.Anum Kamal
(Assistant Professor)
(Project Guided)

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(Head Of Department)

DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING
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DECLARATION

We hereby declare that the project entitled "PIXELPROWL" submitted by us in the partial fulfilment of the requirements for the award of the degree of Bachelor of Technology(CSE) of Integral University, Lucknow, is record of our own work carried under thesupervision and guidance of Ms.Anum Kamal (Assistant Professor). To the best of our knowledge this project has not been submitted to Integral University, Lucknow or any other University or Institute for the award of any degree.

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ACKNOWLEDGEMENT

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PREFACE

In an era marked by an exponential growth of digital imagery, the significance of image processing techniques cannot be overstated. From medical diagnostics to autonomous driving, from security surveillance to entertainment, the realm of image processing holds immense potential for revolutionizing various domains of human life. Among the myriad applications within image processing, object detection stands out as a fundamental and indispensable task.Our project is driven by the recognition of the increasing demand for efficient and accurate object detection algorithms across diverse industries. The ability to automatically identify and locate objects within images not only facilitates automation but also enhances decision-making processes in numerous applications. Whether it's identifying pedestrians for ensuring road safety or detecting anomalies in medical scans, the impact of object detection transcends boundaries.In the pursuit of this project, we endeavored to comprehend the theoretical underpinnings of image processing algorithms while simultaneously gaining practical experience through implementation. Through extensive research and experimentation, we explored a plethora of methodologies and techniques employed in contemporary object detection systems.As aspiring professionals in the field of computer science and engineering, this project serves as a stepping stone towards our academic and professional growth. It has provided us with invaluable insights into the intricacies of image processing and equipped us with the skills necessary to tackle real-world challenges.

ABSTRACT

Image processing is a field of computer science that involves manipulating and analyzing digital images. Python is a popular programming language that offers many libraries and tools for image processing. Some of the best image processing libraries in Python are: scikit-image: a collection of algorithms for image processing that covers various tasks such as filtering, segmentation, feature extraction, and more Efficient and accurate object detection has been an important topic in the advancement of computer vision systems. With the advent of deep learning techniques, the accuracy for object detection has increased drastically. The project aims to incorporate state-of-the-art technique for object detection with the goal of achieving high accuracy with a realtimeperformance. A major challenge in many of the object detection systemsis the dependency on other computer vision techniques for helping the deep learning based approach, which leads to slow and nonoptimal performance. In this project, we use a completely deep learning based approach to solve the problem of object detection in an end-toend fashion. The network is trained on the most challenging publicly available data-set, on which a object detection challenge is conducted annually. The resulting system is fast and accurate, thus aiding those applications which require object detection.

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