FINAL YEAR PROJECT REPORT

IRIS: AI POWERED SURVEILLANCE SYSTEM

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

By

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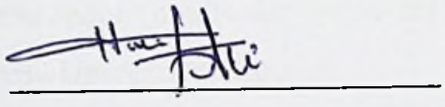
DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Signature : 

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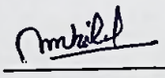
Signature : 

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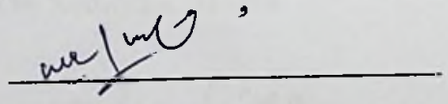
Signature : 

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APPROVAL FOR SUBMISSION

We certify that this project report entitled **"IRIS: AI POWERED SURVEILLANCE SYSTEM"** was prepared by **HUZAIFA ALI BAIG, SYED MUHAMMAD BILAL, SYED AHSAN UL HASAN** has met the required standard for submission in partial fulfilment of the requirements for the award of Bachelor of Science in **Computer Science** at Bahria University, Karachi.

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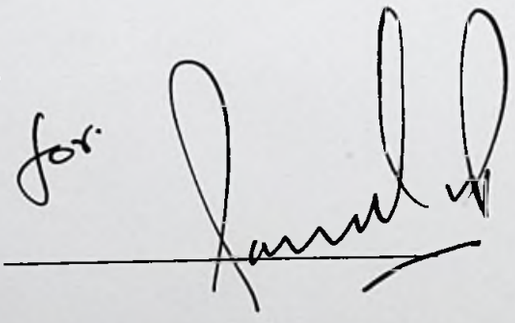
Signature : 

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IRIS: AI POWERED SURVEILLANCE SYSTEM

ABSTRACT

All across the world, surveillance systems are facing many challenges especially in monitoring large public spaces, detecting threats, and promptly and accurately responding. Due to problems such as high latency, poor real-time analysis, and threat detection, conventional systems are less reliable in critical situations. The IRIS: AI-Based Surveillance System uses TensorFlow and YOLO v8 for real-time object detection which makes it a reliable surveillance system. This hybrid solution can manage multiple video streams simultaneously due to its low-latency performance and scalability. To enhance the performance of the system and ensure the model is trained on diverse datasets, strict pre-processing methods like frame shrinking, noise reduction, and data augmentation were used. Also, a special way of changing the frames we input and filtering them made detection more accurate and brought down computing overhead. The system has been tested extensively and is accurate at 83% for fire, 80% for people, and 68% for violence detection making it suitable for many applications. IRIS system is a remarkable progress in automated monitoring and offer a comprehensive and effective solution to the current secure without any human involvement.

TABLE OF CONTENTS