



FINAL YEAR PROJECT REPORT

BLIND SIGHT: INTELLIGENT OBJECT RECOGNITION AND NARRATION

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

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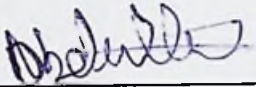
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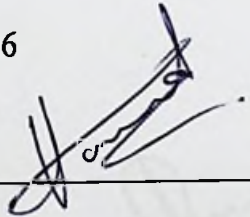
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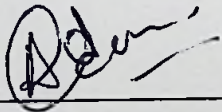
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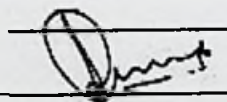
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Specially dedicated to
My beloved Mother and Father

Hammad Randhawa

My beloved Mother and Father

Abdullah Masood

My beloved Mother and Father

Adan Uddin

ACKNOWLEDGEMENTS

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our project supervisor, Ms. Amna Iftikhar for her invaluable advice, guidance and her enormous patience throughout the development of the research.

In addition, we would also like to express our gratitude to our loving parents and friends who have helped and given us encouragement.

BLIND SIGHT: INTELLIGENT OBJECT RECOGNITION AND NARRATION

ABSTRACT

This project presents a pioneering AI-powered helping technology designed to empower visually impaired people in finding complex classroom environments with confidence and independence. Our innovative system leverages a camera and microphone to detect objects and receive voice inputs, respectively, enabling a seamless interaction between the user and the environment. We employed the cutting-edge YOLOv8 algorithm for object detection, harnessing its exceptional accuracy and efficiency in computer vision tasks. Additionally, we developed a sophisticated focal length calculation algorithm to precisely calculate the distance between the user and detected objects. Upon receiving a voice input, our advanced model rapidly processes the object detection data, converting it into intuitive voice output that provides detailed information on the object's direction, distance, and spatial relationships through earphones. This real-time audio feedback enables blind individuals to build a mental map of their surroundings, effortlessly locating essential classroom features such as desks, chairs, whiteboards, and exits. By enhancing their spatial awareness and navigation skills, our system significantly improves the educational experience, boosts participation, and fosters a more inclusive learning environment. This technology has the potential to significantly improve the daily lives of visually impaired individuals, with applications that go beyond the classroom and into various aspects of their personal and professional lives, ultimately enhancing their overall well-being and independence.

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