IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, May 2025
Impact Factor: 7.67

VISIONBRIDGE: Enabling Independence through Object, Face and Currency Recognition for the Blind

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Abstract: *Navigating daily life poses significant challenges for blind and visually impaired individuals, particularly in identifying obstacles, recognizing familiar faces, and handling currency transactions. These everyday tasks often require external assistance, leading to a dependency on others and a reduced sense of autonomy. Traditional tools like white canes and guide dogs offer limited functionalities and cannot address the dynamic and complex challenges faced by visually impaired individuals in real-time environments. This study introduces an innovative interface designed to empower blind and visually impaired individuals by enhancing their independence and safety. The proposed system integrates advanced AI powered functionalities such as face detection, obstacle detection, and currency recognition. By utilizing real-time image capturing and processing, the system provides users with immediate, context sensitive audio feedback to assist them in navigating their surroundings and performing essential tasks. The development of such a system is necessary to bridge the gap left by existing assistive technologies, which are often limited in functionality, integration, or affordability. By leveraging advancements in artificial intelligence, computer vision, and wearable technology, the proposed solution addresses critical challenges, fostering greater autonomy and confidence for visually impaired individuals in their daily lives.*

Keywords: blind and visually impaired individuals

DOI: 10.48175/IJARSCT-26412