

“AN EFFICIENT MODEL FOR POLYP DETECTION USING DEEP LEARNING APPROACH”

PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award of

**Bachelor of Engineering
in
Computer Science and Engineering
(18CSP83)
Submitted to**

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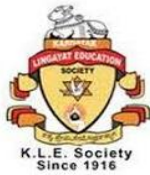
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2023-2024





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CERTIFICATE

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ABSTRACT

The primary focus of polyp segmentation and detection using deep learning approaches is to improve accuracy and efficiency in early diagnosis and intervention planning for gastrointestinal diseases. By leveraging advanced algorithms such as the U-Net model, which is particularly effective for biomedical image segmentation, this research analyzes diverse data inputs, including endoscopy images and patient history, to develop robust predictive models for efficient polyp identification. The U-Net architecture, with its ability to capture fine details and spatial hierarchies in images, is instrumental in accurately delineating polyp boundaries, significantly enhancing segmentation performance. Through interdisciplinary collaboration among computer scientists, medical professionals, and data scientists, scalable and objective tools for polyp detection are being created. The methodology involves collecting and preprocessing data, training models on large datasets, and evaluating performance through scenarios like image-based segmentation, feature extraction, and classification. Results show significant advancements in detection capabilities, promising to revolutionize gastrointestinal disease assessment and management. Future research will focus on refining algorithms, integrating multimodal data sources, and enhancing accessibility to improve the diagnosis and treatment of polyps. By standardizing and enhancing the accuracy of polyp detection, these advanced deep learning models, particularly those utilizing U-Net, have the potential to significantly reduce the incidence of missed polyps, ultimately improving patient outcomes and transforming the clinical approach to gastrointestinal health.

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