



**Gokaraju Rangaraju**  
**Institute of Engineering and Technology**  
(Autonomous)

**Department of Computer Science and Engineering**

**GR22A2109 – REALTIME RESEARCH/ SOCIETAL RELATED PROJECT**

**II Year B.Tech. II Semester**

**Academic Year 2023-2024**

<b>Domain</b>	Image Processing
<b>Title</b>	Real-time Pothole Detection System: Mitigating Road Hazards through Image Processing
<b>Batch no.</b>	B8
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**ABSTRACT**

Potholes, prevalent on roadways worldwide, present a significant hazard to motorists, cyclists, and pedestrians alike. According to recent statistics, potholes were one of the main accident-causing factors leading to over 4.4 thousand fatalities in the year 2022. Traditional methods of pothole detection are often time-consuming, posing risks to road users.

In response to this pressing issue, our project focuses on developing a proactive solution through image processing techniques. Leveraging advancements in computer vision and machine learning, our system aims to detect potholes in real-time, thereby enabling timely interventions to prevent accidents.

Our project proposes a novel approach to pothole detection utilizing a convolutional neural network (CNN) architecture trained on a diverse dataset of road images. By leveraging deep learning algorithms, our system will be capable of accurately identifying potholes with high precision and recall rates, even in challenging lighting and weather conditions. Moreover, through sophisticated pattern recognition, our system can differentiate between road irregularities and accurately flag potential hazards.

The implementation of our pothole detection system will not only enhance road safety but also streamline maintenance efforts by enabling authorities to prioritize repairs based on detected pothole severity and location data. Our project seeks to mitigate the risks posed by potholes and contribute to the creation of safer and more efficient transportation networks.

**Signature of the Guide**