National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Conference Return Seminar: Comparative Analysis of Camera Technologies for Construction Safety Assessments: Potential and Challenges
Speaker	: Dr. Kishor Bhagwat
Supervisor	: Dr. M. Gattu
Venue	: CE Seminar Hall
Date and Time	: 08 Apr 2025 (3:00 P.M.)
Abstract	: The construction industry is a major global economic driver, with the success of construction projects having a significant impact on the social, environmental, and economic development of nations. However, the success of many construction projects is hindered by poor safety performance. To improve safety, it is essential to assess it effectively. Past literature has developed various manual methods for assessing safety performance, often based on compliance with safety regulations set by local or global organizations. The advent of camera technology has enabled construction safety professionals to automate the assessment, documentation, and training. However, a comparative analysis of three camera technologies—Stationary Camera, helmet-mounted 360º Portable Camera, and camera-mounted Unmanned Aerial Vehicle (UAV)—in terms of their potential and challenges for safety assessment using a case study approach has been limited. Given the increasing adoption of automation in the construction industry and the need to address safety concerns, this study aims to conduct a comparative analysis of these camera technologies for safety assessment. A residential building was selected as a case study, and safety indicators were derived from the Bureau of Indian Standards. The potential of the three camera technologies in safety assessment was tested. The results revealed that the 360º Portable Camera outperforms the other two technologies, demonstrating its full potential for safety assessment. The data collection process also highlighted several challenges associated with the use of these camera technologies. The Stationary Camera showed advantages in areas such as ‘Ease of Use’, ‘Regulatory Restrictions’, ‘Purchase Cost’, and others. The findings pro-vide valuable insights for construction safety professionals, helping them to select the most appropriate camera technology for safety assessment.