**Title:** VIT ID Card Identification and Classification through Strap Colour Analysis

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**Abstract:**

The Vellore Institute of Technology (VIT) ID cards are identified and categorized using this project's creative application of artificial intelligence, machine learning, and digital image processing techniques based on the colour of their straps. By combining these cutting-edge technologies, the identification process will be more accurate, effective, and flexible in a variety of situations.

The technology uses a computer vision-based method to take pictures of people showing their ID cards in real time. The strap region is extracted and isolated using digital image processing techniques, enabling accurate colour feature analysis. The study trains a model that can identify and categorize ID cards based on the distinctive colour signatures of their straps by utilizing machine learning (ML) technologies, such as convolutional neural networks (CNNs).

To enhance the classification process and dynamically modify identification criteria, the project also investigates the integration of AI-driven decision-making. The system's resilience is evidenced by its capacity to adapt to changes in illumination, colour of the strap, and any occlusions.

The suggested solution has many benefits, such as enhanced access control process efficiency, less reliance on conventional techniques, and better ID card categorization accuracy. If this project is carried out effectively, VIT will be able to create a state-of-the-art ID card identification system that will also lay the groundwork for future improvements in campus administration and security.