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SUMMARY:

Title : Face Recognition Using Histogram of Oriented Gradients with TensorFlow in Surveillance Camera on Rasberry Pi

The article examines the application of facial recognition technology to enhance the effectiveness of surveillance systems, with a particular focus on integrating surveillance cameras with Raspberry Pi devices. It emphasizes the increasing need for continuous monitoring of criminal activities and suggests that facial recognition could serve as a valuable solution. Facial recognition is highlighted as not only a means of identifying individuals but also as a proactive measure for preventing criminal behavior.

The methodology employed is detailed, including the use of the Histogram of Oriented Gradients (HOG) technique for facial feature extraction and the implementation of TensorFlow for real-time facial recognition tasks. The article also outlines the device's block diagram. In this tool, the communication between the user and the device uses a Graphical User Interface (GUI) and internet media, so that notifications can be received anywhere. The image that is input from the camera will undergo a gray scaling process, then it will be taken the extraction value and classified by deep learning framework with TensorFlow. The system will send notifications when faces are not recognized. Provide more security to users because there is an early warning feature when a crime occurs, in this case when the face is unknown, emphasizing the central role of the Raspberry Pi in controlling and processing data.

Moreover, the article discusses the results obtained and evaluates the effectiveness of the proposed system. It underscores the various advantages of facial recognition technology in strengthening security measures and ensuring continuous surveillance. Ultimately, the article provides a nuanced perspective on the growing importance of facial recognition technology in the fields of security and surveillance