EAR RECOGNITION USING EDGE DETECTION ALGORITHMS

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Human use attributes, which are among the most common biometric characteristics, to recognize one another in a non-intrusive manner. Biometric identification is found solely on who you are and does not depend on your possessions or knowledge. The physiological and inactive biometric known as the ear uses the shape of the ear structure. Ear has received much consideration in late biometrics as it is a solid biometric for human acknowledgement. Similar to how face photos are taken, ear images can also be taken. Due to the outbreak of COVID-19, everyone hold covers face and avoid hand's contact nature. In this scenario, ear can be replaced as it is a passive biometric that doesn't need the individual to participate and is unaffected by a number of other biometric concerns, such as anxiety, privacy and hygiene. Existing research in ear recognition more focuses on adult's ear images. In this work, we focus on kids' ears as they are in a growing state. A dataset with 700 images acquired from 100 kids using mobile camera is used for the evaluation. Edges play a major role in ear structure while providing discriminatory features. This work investigates edge features of ears where Canny and Sobel edge detection algorithms are used. Decision tree, Support vector machine, K-Nearest neighbour classifiers are exploited with each edge detection algorithm and the combination of both algorithms. Decision tree yields higher accuracy for Sobel edge features while SVM results higher accuracy with 92.5% for Canny features.

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