**ABSTRACT**

Biometric based authentication system provides robust security and ease of use than conventional methods of verification system. Among various biometrics namely iris, face and gait recognition, Fingerprint recognition has been extensively used by several organizations for recognition and authentication purpose because of its low cost, usability and reliable performance. However, the performance of fingerprint identification techniques is extensively depending on the quality of the input fingerprint images. Due to the context of the image-acquisition process, most of the fingerprint images are found to be low or lack in quality. By concerning privacy issues, these types of low-quality fingerprint templates are easily accessible by intruders, thereby lacks the security. To address this issue, the present work proposes quality enhanced, secured biometric template which simultaneously combines the quality enhancement and cancellable template generation techniques for robust authentication purpose. The fingerprint quality can be improved by means of two-phase enhancement technique, learns the acquired input image by enhancing spatial and frequency domain of image respectively. After that, the cancellable fingerprint templates are generated by means of transforming the quality enhanced fingerprint minutiae distortedly by using Distortion Transformation. Experimental results show that the proposed algorithm efficiently holds various input image contexts and attains improved results in terms of quality and security when compared with some state-of-the-art methods, and thus improves the fingerprint-authentication systems performance.