UNIVERSITI TEKNOLOGI MARA

ASSESSING THE RELIABILITY OF MULTIMODAL BIOMETRIC SYSTEM : A CASE STUDY AT JABATAN PENDAFTARAN NEGARA (JPN)

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ABSTRACT

Jabatan Pendaftaran Negara (JPN) is a government agency that responsible to provide national identity card (MyKad) to Malaysia citizens. The JPN Automated Fingerprint Identification System; JPN AFIS is a biometric system used by JPN to manage biometrics records to provide the MyKad to Malaysia citizens. JPN AFIS has the characteristic of a unimodal biometric system that uses only fingerprint data in its business process. In JPN daily scenario; JPN AFIS has limitations in accommodating services for problematic fingerprints applicants. It can take up to three months for problematic fingerprints applicants to have their MyKad application approved with all credible records presented to JPN. Due to this limitation, there is a need for a system that does not rely on fingerprint data alone as this presents a disadvantage to applicants with problematic fingerprints. The system should have capabilities to accommodate problematic fingerprints applicants by providing other credible biometric data such as facial traits, which can be addressed, by multimodal biometric system. Thus, the aims of the study are to measure the reliability and efficiency of a multimodal biometric system in JPN environment for problematic fingerprints applicants. A proof of concept (POC) of Facial Biometric System, using random data from JPN AFIS database was established in JPN environment. The system's reliability and efficiency was determined by measuring the biometrics performance metrics using data from the POC. A survey for user perception and acceptance was also conducted to the system's users. Outcomes from the study of the POC and user's surveys indicate that the Facial Biometric System overcomes the limitations of the existing system in accommodating the problematic fingerprints applications by shorten the approval time from up to three months to as fast as two days. The study also indicates that multimodal system shows significance promise of being a reliable system, where its findings would help JPN to provide efficient services for public and easing the MyKad applications process for citizens especially to those with problematic fingerprints.

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