

## ABSTRACT

The research project developed the B-bot: The Security Robot. It is a PC-based mechanical robot with fingerprint scanner and handheld metal detector aimed to ensure the safeguard and protection of a place against intruders. The prototype is capable of detecting ferrous and non-ferrous metal objects using metal detector and supported by fingerprint scanner for verification. The system was developed using primarily hardware component such as the PIC16F844 and Z86E08 microcontrollers, gear motors, solenoid enabled barrier, handheld metal detector, and Digital Persona Fingerprint Scanner. The software component was developed using Visual Basic 6.0 and MySQL. Test results show it takes 40 seconds to complete the process from fingerprint recognition to metal detection, and a metal object can be detected depending on its distance from the detector. The system was evaluated by a group of 30 IT experts and Security Personnel using the TUP Evaluation Instrument for Prototypes. The developed system was rated "Very Good" by the respondents, which proves that the prototype can be implemented for security purposes.

