Abstract

The access to a restricted area is normally done through a manual system of keys and locks. In some places, it has been automated through the use of personal identification number or passwords and smartcard technology. However, such systems are faced with a number of limitations such as losing a smartcard, forgetting a PIN, duplication of keys and impersonation among others. Thus the use of an authentication system such as biometric verification techniques has recently been suggested for security system for instance access control. Unfortunately, biometric systems for access control currently in the market are expensive thus restricting their wide usage. This is because they are available as embedded units made of high-cost sensors and hardware. In this research study, a prototype of a computer based fingerprint door access control is designed and presented. The main components include a low-cost SM630 fingerprint verification module, a personal computer and a relay-operated electromagnetic lock. The system performs training and verification using a LabVIEW program in conjunction with the SM630 fingerprint reader module. The verification result is passed onto the electromagnetic lock to grant physical access to a restricted area. The system has an
additional feature of capturing an imposter image. This is an important tool in carrying out security analysis. It has been found through testing that the proposed system can be effectively applied in restricted access control.

References

Index Terms

Computer Science  Security

Keywords

LabVIEW, access control, SM630, automation.