ABSTRACT

Every organization, be an educational institute or organization public or private, it has to

maintain accurate records of attendance of students or staff for effective working of

organization. As time has shown, both private and public sectors face high level of

mismanagement due to false records and impersonations. Employers and officials are

concerned over employee absenteeism in their human resources and the problems in

maintaining records of student attendance during lecture periods. Finger prints are the

patterns of ridges and valleys on everyone’s finger tips. They can be used as a type of

biometric identification which, like all personal features, are unique to a person and do not

change in the person’s lifetime. An attendance system based on fingerprint technology,

suitable to be used in a university environment, is presented in this thesis. The finger print

based attendance system was implemented with .atmega328 Microcontroller, R-305

fingerprint sensor and programmed in C++. It comprises of two

processes; enrollment and authentication. During enrollment, the finger print of the user is

captured and its unique defining features extracted to be stored in the flash memory along

with the other users identities as a template. Minutiae points, the unique feature, are extracted

using a method which extracts the ridge’s endings and bifurcation. During authentication, the

user’s fingerprint is scanned to be stored in one of the two buffers and the extracted features

compared with the template which is loaded to the other buffer to compare the match before

attendance is verified. The experimental result exhibits that the system developed is highly

efficient in verifying fingerprint with a high level of accuracy.