Application of keystroke dynamics in Mobile Device Users Authentication

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EXTENDED ABSTRACT

Mobile devices like Laptops and PDA (Personal Digital Assistants) have outgrown their initial use for telephony and now have added functionality such as On the Move Communication Capabilities (web browsing, m-commerce), Mobile Computing (applications like Word processors, Spreadsheets) and also Personal Information Management Systems. Depending on the specific area of usage of the device, the importance and hence the sensitivity of the data stored in it changes. As a result, there is a need for various fool proof methods to secure the data. Also, the portability characteristics of these mobile devices lead to the loss or theft of the devices itself.

The users of these mobile devices have so far used the secret knowledge authentication method of PIN i.e. (Personal Identification Numbers) and sometimes the user Subscriber Identity Module (SIM) to safeguard the devices as well as the data stored in it. But, with the problems associated with using PIN’s (Easy to Crack password’s, Sharing the passwords with others, writing them down, using the same password for different devices), the need for using sophisticated methods allowing only the legitimate users the access to data (authentication) and identifying and preventing imposters manifolds many times as the mobility of the computing devices changes.

CONCLUSION

With the increase in usage of the mobile devices for various services, the level of security requirements also changes as per the services. So there is a strong need for using multi modal authentication methods for safe guarding the data stored in these devices. Authenticating the users can be done by using 1) what the user knows 2) what the user has and 3) what the user is. The third option is what biometrics is. Biometrics is used to describe a characteristics or a process which can be either physiological or behavioural. The physiological characteristics include eye, face whereas the behavioural characteristics include voiceprints and keystroke dynamics. With the need of users for a continuous authentication scheme, biometrics scores over the other innovative methods like Bluetooth and RFID.

FUTURE SCOPE

The recent survey conducted among the mobile users has identified that most of them have realized the need for strengthening the security on their devices depending on the usability.

The PIN based point of entry (secret knowledge) can be further enhanced by measuring the rhythm of typing of users which has been discovered to be unique for users (“fist of fury”).

Keystroke Dynamics is a process of analyzing the way a user types at a terminal by monitoring the keyboard inputs thousands of times per second and attempts to identify them based on habitual rhythm patterns in the way they type.

Keystroke Dynamics is a non-intrusive methodology. Unlike the other behavioural features, Keystroke dynamics does not require any special hardware (A simple keyboard is enough). Various studies have shown that although users prefer fingerprinting over the other biometrics techniques, Keystroke dynamics
is gaining acceptance over the other techniques for the authentication of the mobile device users.

REFERENCES


