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Utilizing Wireless Technology to Enhance Biometric Solutions

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The Problem

With the increasing need to control and account for access to secured areas as well as for admission verification to privileged events, biometrics have already proven themselves to be a respected solution. However, with respect to admission verification, biometric solutions currently are implemented in static fashions where the verification devices are in a fixed position. This requires either the purchase of more devices to implement systems in all possible areas, or impose more burden upon the end user by making them wait in longer lines. The merging of biometric and wireless technologies provides a cost-effective and streamlined solution to facilitate the admission, enrollment, and verification processes over distances where wired solutions may not be feasible.

The Scenario

Hand geometry devices have potential to replace access control devices such as magnetic swipe card systems for access control and time & attendance applications. The proposed biometric system would be used to verify the identity of individuals attempting to gain access to participate in activities that are restricted for registered users only. However the building has over 50 rooms which do not need to be biometrically secured. Thus it would not be cost effective to implement hand geometry for each room as implementation costs could not be justified.

Hence a proof of concept was needed to prove that the hand readers could operate normally in a wireless environment while remaining secure.

Recognition Systems.

For more information visit:

http://www.biotown.purdue.edu

The Proposal

The advancements in wireless technology have come to a point where implementing a secure stand-alone wireless network is extremely cost effective. Therefore by utilizing off the shelf wireless equipment, biometric devices have been connected wirelessly and securely to a central database while continuously changing their physical locations.

The Solution

Three industry standard hand readers, a wireless router, a wireless bridge and a server were used to create a secure, stand alone network to allow the hand readers to operate in varying locations as if they were in a fixed position via a WPA encrypted 802.11g wireless network.

Wireless Biometric Hand Reader Proof of Concept

Server with Handnet Software: IP 192.168.1.99

WRT54G Wireless Router and (5-port switch): IP 192.168.1.1

Enrollment Hand Reader – Connected via Serial Interface to PC with Handnet Software

WET54GS5 Wireless Access Point and (5-port switch): IP 192.168.1.5

Remote Hand Reader 1: IP 192.168.1.100

Remote Hand Reader 2: IP 192.168.1.101

Legend		
Legend Subtitle		
Symbol	Count	Description
	1	Router
	3	Ethernet
	1	Server
	1	Wireless access point
	1	Comm-link
	1	Bridge
	3	Biometric Hand Reader

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