

UNIVERSAL SECURE REGISTRY

BACKGROUND OF INVENTION

1. Field of Invention

This invention generally relates to a method and apparatus for securely storing and disseminating information regarding individuals and, more particularly, to a computer system for authenticating identity or verifying the identity of individuals and other entities seeking access to certain privileges and for selectively granting privileges and providing other services in response to such identifications/verifications.

2. Discussion of Related Art

Control of access to secure systems presents a problem related to the identification of a person. An individual may be provided access to the secure system after their identity is authorized. Generally, access control to secure computer networks is presently provided by an authentication scheme implemented, at least partly, in software located on a device being employed to access the secure computer network and on a server within the secure computer network. For example, if a corporation chooses to provide access control for their computer network, they may purchase authentication software that includes server-side software installed on a server in their computer system and corresponding client-side software that is installed on the devices that are used by employees to access the system. The devices may include desktop computers, laptop computers, and handheld computers (e.g., PDAs and the like).

In practice, the preceding approach has a number of disadvantages including both the difficulty and cost of maintaining the authentication system and the difficulty and cost of maintaining the security of the authentication system. More specifically, the software resides in the corporation's computers where it may be subject to tampering/unauthorized use by company employees. That is, the information technology team that manages the authentication system has access to the private keys

opportunity to compromise the security of the system. Further, any modification and/or upgrade to the authentication system software is likely to require an update to at least the server-side software and may also require an update of the software located on each user/client device. In addition, where the company's computer systems are geographically distributed, software upgrades/updates may be required on a plurality of geographically distributed servers.

There is also a need, especially in this post September 11 environment, for secure and valid identification of an individual before allowing the individual access to highly secure areas. For example, an FBI agent or an air marshal may need to identify themselves to airport security or a gate agent, without compromising security. Typically such identification may comprise the air marshal or FBI agent showing identification indicia to appropriate personnel. However, there are inherent flaws in this process that allow for security to be compromised, including falsification of identification information or the airport security or personnel not recognizing the situation. Of course this process could be automated, for example, by equipping airport personnel or security with access to a database and requiring the FBI agent or air marshal to appropriately identify themselves to the database, for example, by again providing identification which airport personnel can then enter into the database to verify the identity of the person seeking access to a secure area. However, this process also has the inherent flaws in it as described above. In addition, there may be times when airport security or personnel may not be able to communication with the database to check the identity of the person seeking access, for example, when they are not near a computer terminal with access to a database or are carrying a hand-held device that does not have an appropriate wireless signal to access the database. In addition, there is a need to ensure that if such a hand-held device ends up the wrong hands, that security is not compromised.

Systems capable of effectively performing all or some of these functions do not currently exist.

SUMMARY OF INVENTION

There is thus a need for an identification system that will enable a person to be accurately identified ("identification" sometimes being used hereinafter to mean either

identified or verified) and/or authenticated without compromising security, to gain access to secure systems and/or areas. Likewise, there is a need for an identification system that will enable a person to be identified universally without requiring the person to carry multiple forms of identification.

Accordingly, this invention relates, in one embodiment, to an information system that may be used as a universal identification system and/or used to selectively provide information about a person to authorized users. Transactions to and from a secure database may take place using a public key/private key security system to enable users of the system and the system itself to encrypt transaction information during the transactions. Additionally, the private key/public key security system may be used to allow users to validate their identity. For example, in one embodiment, a smart card such as the Secure ID™ card from RSI Security, Inc. may be provided with the user's private key and the USR system's public key to enable the card to encrypt messages being sent to the USR system and to decrypt messages from the USR system 10.

The system or database of the invention may be used to identify the person in many situations, and thus may take the place of multiple conventional forms of identification. Additionally, the system may enable the user's identity to be confirmed or verified without providing any identifying information about the person to the entity requiring identification. This can be advantageous where the person suspects that providing identifying information may subject the identifying information to usurpation.

Access to the system may be by smart card, such as a Secure ID™ card, or any other secure access device. The technology enabling the user to present their identity information may be physically embodied as a separate identification device such as a smart ID card, or may be incorporated into another electronic device, such as a cell phone, pager, wrist watch, computer, personal digital assistant such as a Palm Pilot™, key fob, or other commonly available electronic device. The identity of the user possessing the identifying device may be verified at the point of use via any combination of a memorized PIN number or code, biometric identification such as a fingerprint, voice print, signature, iris or facial scan, or DNA analysis, or any other method of identifying the person possessing the device. If desired, the identifying

device may also be provided with a picture of the person authorized to use the device to enhance security.

According to one embodiment of the invention, a method of controlling access to a plurality of secure computer networks using a secure registry system located remotely from the secure computer networks is disclosed. The secure registry system includes a database containing selected data of a plurality of users each authorized to access at least one of the plurality of secure computer networks. The method comprises acts of receiving authentication information from an entity at a secure computer network, communicating the authentication information to the secure registry system, and validating the authentication information at the secure registry system. The method also includes receiving from the secure registry system an indication of whether the entity is authorized to access the secure computer network, granting the entity access to the secure computer network when the authentication information of the entity corresponds to one of the plurality of users, and denying the entity access to the secure computer network when the authentication information of the user does not correspond to one of the plurality of users.

Another embodiment of the invention comprises a method of controlling access to a secure computer network using a secure registry system. The secure registry system includes a database containing selected data of a plurality of users authorized to access the secure computer network and selected data identifying the secure computer network. The method comprises receiving an access request including authentication information and a computer network ID from an entity, determining whether the authentication information is valid for any of the plurality of users, accessing data when the authentication information of the entity is valid for one of the plurality of users to determine whether the entity is authorized to access the computer network identified by the computer network ID, and allowing the entity to access the secure computer network when the authentication information of the entity is valid for one of the plurality of users authorized to access the computer network identified by the computer network ID.

Another embodiment of the invention comprises a method of authenticating an identity of a first entity. The method comprises the acts of wirelessly transmitting from a first device first encrypted authentication information of the first entity

receiving with a second device the wirelessly transmitted first encrypted authentication information, decrypting with the second device, the first wirelessly encrypted authentication information to provide the first authentication information of the first entity to the second device; and authenticating the identity of the first entity based upon the first authentication information; and acting based on the assessed identity of the first entity.

Another embodiment of the invention comprises a system for authenticating an identity of a first entity, comprising a first wireless device comprising a first wireless transmitter and receiver configured to transmit a first wireless signal including first encrypted authentication information, a first processor configured to compare stored biometric data with detected biometric data of the first entity and configured to enable or disable use of the first device based on a result of the comparison, and configured to encrypt first authentication information with a first private key of the first entity into the first encrypted authentication information, a first biometric detector for detecting biometric data of the first entity, and a first memory for storing biometric data of the first entity, a private key of the first entity authorized to use the first device, and the first authentication information.

According to some embodiments, the system further comprises a second wireless device comprising a second wireless transmitter and receiver configured to receive the first wireless signal and to process the first wireless signal, a second processor configured to compare detected biometric data of a second entity with stored biometric data and configured to enable or disable use of the second device based upon a result of the comparison, and configured to decrypt the first authentication information received in the first wireless signal, a biometric detector for detecting biometric data of a second entity, and a second memory storing biometric data of the second entity and a plurality of public keys of a plurality of first entities.

Another embodiment of the invention provides a first wireless device comprising a processor configured to enable operation of the first wireless device if it receives an enablement signal validating first biometric information of a first entity and configured to generate a non-predictable signal from the biometric information, a first wireless transmitter and receiver configured to transmit a first wireless signal

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