SmartKey Access Control System

Hardware Overview

- SmartKey Master Controller
- Smart HUB
- Door Control Unit
- RFID Readers

Master Controller

HUB

Door Control Unit

RFID Readers

Features:

SmartKey Master Controller

- 1MB internal memory (2MB optional), can hold up to 20,000 cards and 40,000 transactions.
- 4 RS-485 ports to connect devices. Each port can transmit up to 1200 meters.
- Can connect up to 32 devices by adding expansion HUB.
- USB and Ethernet connection to PC
- Rechargeable backup battery, can work for 10 hours
- Wide voltage range AC power input (100~240VAC)
- Firmware reload capability, user can upgrade the firmware or change the controller's functionality by changing the firmware.

Smart HUB

- HUB to expand one Master Controller's RS-485 port to 8 RS-485 ports
- Use 12VDC power

Door Control Unit

- Relay to open door's electrical lock
- Connect to 2 RS-485 Readers or 2 Wiegand Readers (other brand readers supported)
- Door Release Button Input
- Door Sensor Input (Optional)
- Use 12VDC power

RFID Reader

- 125kHz or 13.56MHz Proximity readers
- Keypad Reader
- Keypad Reader with display
- User 12VDC power

Hardware Connection

Figure 1 shows an example layout of a large scale system. Multiple Master Controllers, Computers, and the Server are connected via LAN, or through the VPN remote connection.

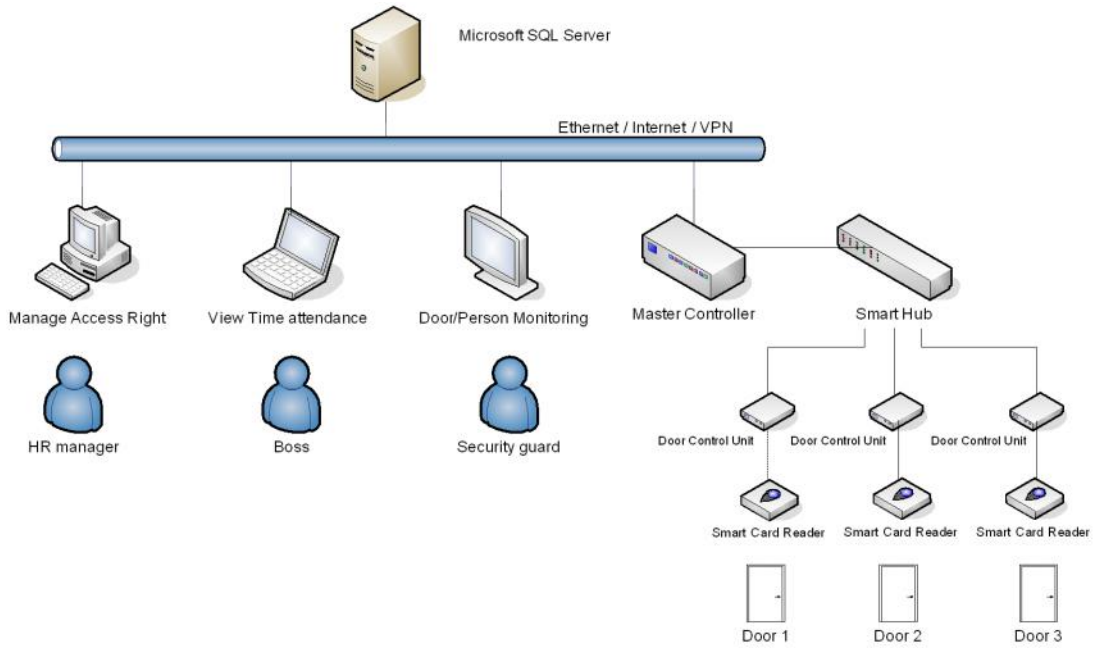

Figure 1. Example layout for large scale system

The system can be installed onto a single PC. Master Controllers are connected via USB.

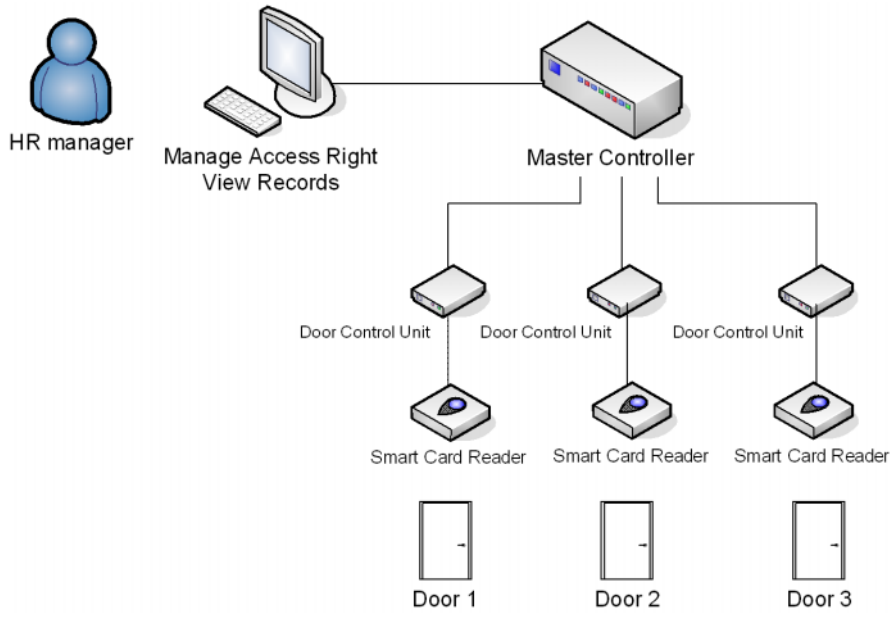

Figure 2. Example Layout for Single PC system

Software Overview

*S*mart *A*ccess *M*anager

The software S.A.M. is developed with the latest Microsoft .net technology. It is based on client-server modal. The software can be run on a standalone personal computer, or on multiple networked computers. S.A.M. uses SQL server as the database so that it provides secure and reliable data management. The S.A.M. installation disk includes a free 5 license of Microsoft SQL 2005 express.

Features

Features	Usage
USB connectivity	Connect Master Controller to Computer via USB, suitable for small system (Figure 2).
Network connectivity	Connect Master Controller to Multi-Computer via Ethernet, suitable for large scale network (Figure 1), for example, Remote site, VPN.
Off-line operation	After synchronization between computer and Master controller, the access control system (including access right and transaction) will operate even the computer is turned off.
Multiple computers support	S.A.M. can be installed on multiple computers to manage access right, view transaction.
Hardware Auto Detection	S.A.M. can detect the master controllers and all the connected devices (Figure 4). User can verify the hardware connection easily.
Reconfigurable Memory Usage	Operator can adjust the number of card holders allowed to store inside the controller, and hence change the number of transaction records that controller can hold. For example, since the internal memory of the controller is 1MB (2MB optional), if 500 cards are set, the controller can store up to 85,000 transactions. If 30,000 cards are set, up to 16,000 transactions can be stored.
Security Groups	S.A.M. support 250 groups of different access rights.
Time Tables	Time slot for security groups can be set easily.

	(see Figure 5).
Holidays	S.A.M. support two types of holidays
Card Holders	Setup each Card holder's access right including security group, expiry date, and user PIN (for keypad reader).
Setting Dependency Checking	S.A.M. checks the setting dependency. For example, a card holder may be assigned a group, but if the group was deleted by operator, then the card holder will not have access right afterward. Setting dependency checking will prompt the operator for inappropriate setting.
Transaction Report	Operator can generate transaction reports and get specific records by setting filter for date range, card holders, or events, and choose the sorting order.
First In, Last Out Report	This is a common type of report that tells when card holder first gets in and when he goes out the latest in a day.
Exporting Report	All reports can be exported to Excel (CSV) file based on chosen filter and sorting order (Figure 6).
Intelligent searching	Full or partial text searching for transactions and card holders' information is provided. (Figure 7)
Anti-pass back	Set the sequence of door access, or to prevent re-entry of a particular door.
Door PIN	A door can be set to use PIN only to open door. (for keypad reader)
Card + PIN	A door can be set to read card plus user PIN to open door. (for keypad reader)
Upload Buffering	When uploading card information or configuration settings to the Master Controller, Data will be written to controller's buffer memory first. So that the system will not be interrupted and can still operate normally. After S.A.M. finishes the data transfer, it tells the controller to activate new data. If operator cancels the data upload in the middle of transmission, controller discards the changes and uses the last set of data and operates normally.
Scheduled Synchronization	User can set a scheduled synchronization of database and master controller. If the data in the master controller is found different, S.A.M. will automatically upload the data to the controller.
Recoverable Transaction Download	After downloading the transaction records from master controller, records are still remained in controller's memory. Operator can retrieve records again by

	specifying the date range.
Automation	Each door can be set to automatically open for a specific period of time.
Real Time monitoring	Security guard can monitor the door and card holder's information in real time through the monitoring software.
Multi-Language Support	S.A.M. supports multi-languages. The installation disk comes with English and Chinese. For other languages, user can make his own language version by editing the 'message translation table'.

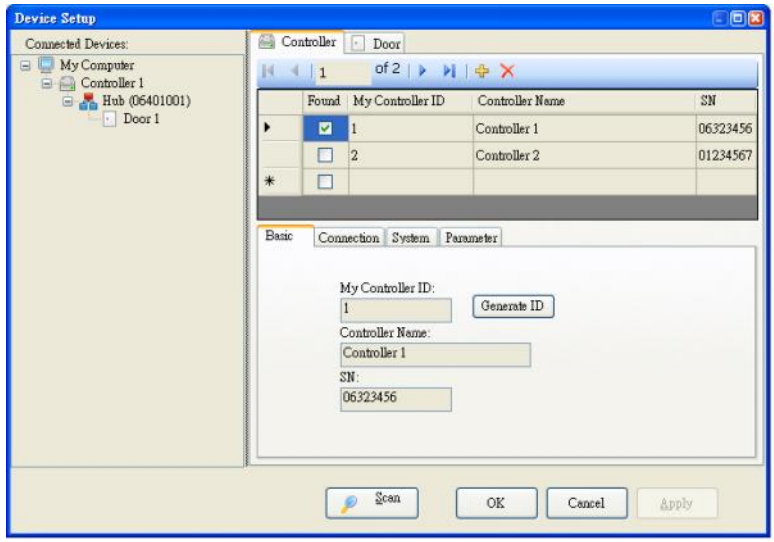

Figure 4. Hardware Detection Tree Diagram

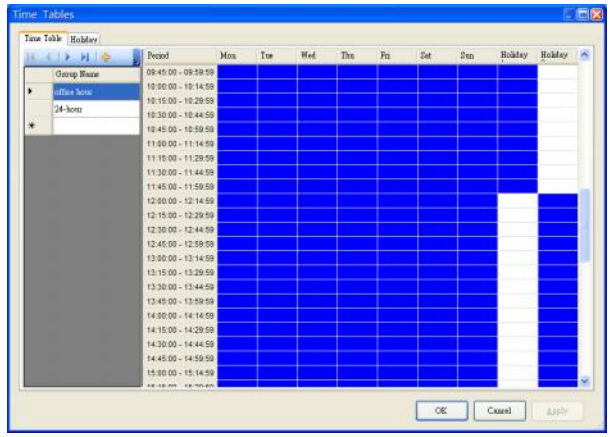

Figure 5. Time Tables setting

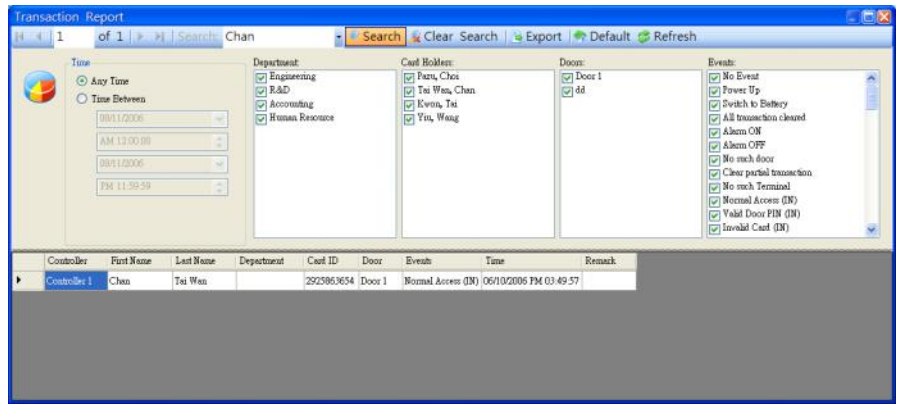

Figure 6. Text search in Transaction

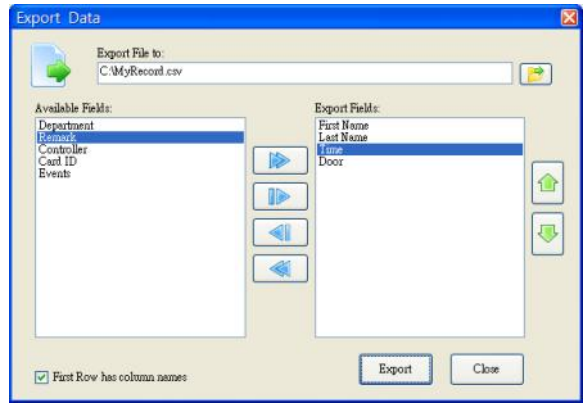

Figure 7. Export selected data to Excel cvs format

System Requirements

Processor	600-megahertz (MHz) Pentium III-compatible or faster processor; 1-gigahertz (GHz) or faster processor recommended
Operating System Supported	· Windows 98 · Windows ME · Microsoft Windows 2000 Professional with SP4 · Microsoft Windows 2000 Server with Service Pack 4 or later · Windows XP with Service Pack 2 or later · Windows Server 2003 with Service Pack 1 or later · Windows Server 2003 Web Edition SP1 · Windows Small Business Server 2003 with Service Pack 1 or later
Memory	192 megabytes (MB) of RAM or more; 512 megabytes (MB) or more recommended
Hard Disk	Approximately 400 MB of available hard-disk space for the recommended installation
Display	Super VGA (1,024x768) or higher-resolution video adapter and monitor

Last updated November 3, 2006.