

RFID-based Automatic Key Management System

RFID-based Automatic Key Management System allows or restricts, depending upon the authorization, the employees of an organization to access the room (almirah also) keys by using their RFID based identity card, issued by the organization.

The system consists of :

- A RFID reader
- SBC with minimum accessories
- A touch-screen based access control terminal for operation and data logging
- PSoC (Programmable system-on-chip) based interface hardware board for relay actuation & input scanning operation.
- Multiple key slots with electromechanical locking arrangements.
- Storage
- Application based on Windows XP

RFID reader will read the information from the identity card of the user and will send them to the PC for authentication. If the user is authorized, the PC will send commands through the interface board for unlocking the key slot. The particular key slot will then be unlocked to allow the user to access the key. Each key, fitted with smart key-tag, will be automatically sensed by the system and its availability is displayed on the user interface. All the key transactions (successful or unsuccessful) will be logged and a report will be generated upon administrator's query. Password authenticated administration system facility will also be provided to prevent any unauthorized access.

Specification:

- RFID based key transaction data logger with authentication.
- A total of 32 key slots per console.
- 8.4" LCD with touch screen.
- Single Board Computer based design with 8GB storage.
- Intelligent key slot to ensure proper transaction with error reporting.
- User friendly application software with complete touch based user mode transaction. Admin mode is supported with keyboard and mouse interface.
- Dedicated RFID key tag which can be assembled at user end.
- Configurable access cycle time up to 15 sec.
- Stand alone operation or Client- Server mode operation through Ethernet Port.
- Easy removal of keys in case of power failure.
- Completely secured ergonomically designed enclosure with lockable rear door.
- A Separate MS stand is provided for flexible positioning of the console.

Hardware Configuration:

- 32 keys are organized in 4 modules, each having eight key slots.
- Each key module have it's own control board designed around PSoC.
- The control board is also having dedicated RFID reader module to scan up to eight Antenna in a time multiplexed mode.
- Each board also contains eight sets of lock actuating circuit for driving either solenoids or motors.
- Key locks are backed up with IR sensors to provide feed back about proper positioning of the locking shaft.
- The Single Board Computer and Touch Screen Display are housed in a separate enclosure which is also a part of the Key Rack Console.
- The SBC is connected with the individual control boards through RS-485 port.
- A second communication port of the SBC operates on RS-232 and deals with a RFID reader to implement user authentication.

