MICROCONTROLLER-BASED SECURITY CODE LOCK WITH EMERGENCY DIAL-UP

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ABSTRACT

The report reveals the design of a microcontroller-based security code lock with an emergency auto-dialer system. The end objective is to construct a security system prototype featuring a keyless door entry equipped with the ability to dial a telephone number and playback a stored voice message while simultaneously issue an audible warning to dissuade intruders. The system design consists of 2 elements; a door reentry system and a main alarm interface.

The keyless door entry system requires the input of a 6-digit security code, which is implemented using a keyboard and integrated using an ATtiny2313 microcontroller. A software algorithm is written to perform code comparison and control of visual and audio indicators. The system implements a power saving feature using the microcontroller's sleep mode.

The dialing is achieved by generating DTMF tones using a MT8880 DTMF Transceiver. The message playback utilizes an ISD1110 voice record/playback IC which signal is amplified using the LM 386 IC. He siren is generated using a piezo speaker, controlled by the ATmega16 microcontroller. A telephone line interface is constructed using a signal transformer for safe connection between circuit and telephone line. The 2 systems are linked via a 433 MHz RF transmitter/receiver link.

The project's design approach has been successfully realized and the objectives met. The security system will be suitable for residential use with slight added improvements such as implementing a rolling code algorithm for a secure wireless link.