Security System Synthesizer

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Our project idea is to create an advanced security system for a house and use a sound synthesizer to notify every security risk. This means whenever the system detects a possible threat outside the house, it will trigger the sound synthesizer to play music as an alert for the people inside the house.

It would require multiple Arduinos to connect different appliances and devices to cover these threats and those Arduinos also will be linked to each other. Input devices like LCD, LEDs, sensors, buzzers, and potentiometer could be used to detect the threat and work accordingly. For the music synthesizer, one Arduino might be enough to provide the core functionality, but we can combine different synthesizers to create more complicated sounds. Output devices would be a speaker and LEDs to be an indicator. Input devices would be a microphone, custom knobs to change the shape/frequency/amplitude of the wave, or even an iOS app to control the synthesizer using BLE/Wireless.

For this project, it involves some original work because we combine all of our idea, not just individual idea. Most of the security system out there only play one or two same predefined types of sound but for our project, it can play many more complicated sounds than that. We aim for our project security system to work with no less than 20 different custom sounds.