Attacks on GSM-devices

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Theory part

GSM-alarms

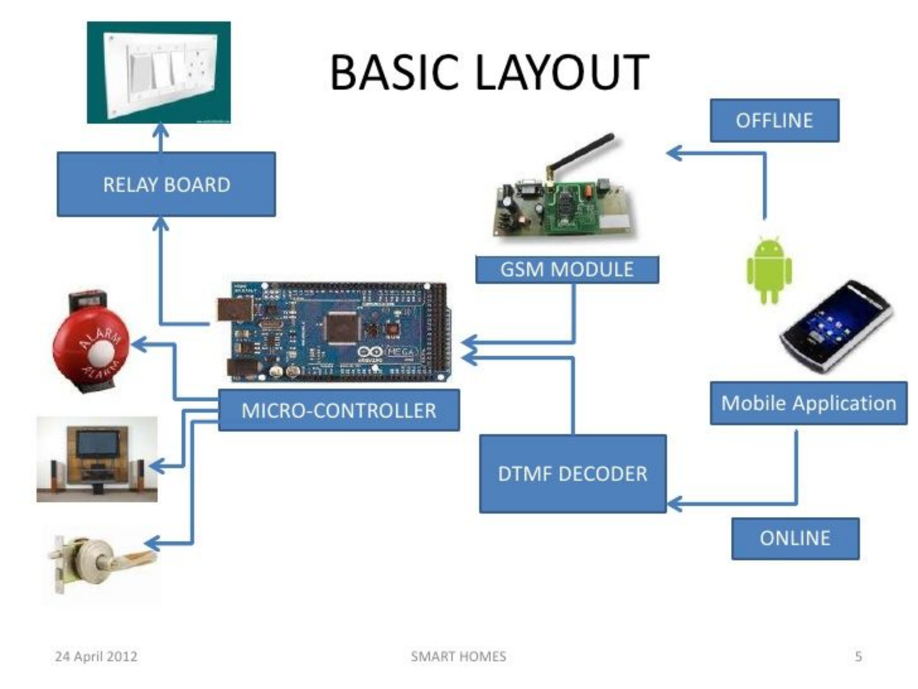
HDeye

WIRELESS GSM
Security Alarm System
UPGRADES
1 2 3 4 5 6

8.8.
GSM
ARM
ALARM
SET
SOS
DHgate.com egomall

18 26

Smart homes



BASIC LAYOUT

RELAY BOARD

GSM MODULE

OFFLINE

MICRO-CONTROLLER

Mobile Application

DTMF DECODER

ONLINE

24 April 2012

SMART HOMES

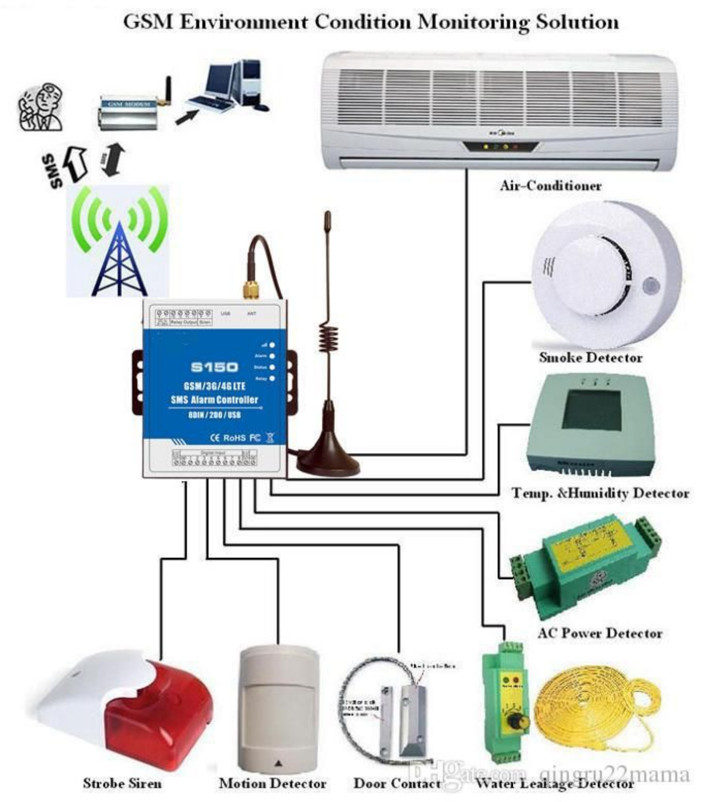
5

Access control systems

GSM Remote Controller
GSM remote control switch
Remote control at anywhere by cell phone with FREE calls !!
Applications For: garage door operator, gate opener, air conditioner heaters, pumps, other machinery and appliance
Power input 12Vdc/ac
SIM
output 2
output 1
3 C
4 NO
5 NC
6 NC
7 NO
8 C
GSM signal
Relay status
Power OK
Model No: GSM-RKEY-001

Industrial GSM controllers

16 Relay output GSM Controller
DC12V power input
Phone calling and SMS remote control



GSM electric sockets

Smartwatches for kids

Controlled devices

User (or hacker) can remotely connect to devices and perform actions

- Controlled alarms
- Electric sockets
- Locks
- Smart homes
- Spy devices

Managed devices

User (or hacker) can remotely connect to devices and change important settings

- Controlled alarms
- Several locks
- Smart homes
- Smartwatches

Uncontrolled devices

User (or hacker) can’t remotely connect to devices and perform actions

- Passive alarms (just will send SMS or make a call)
- Several GSM-trackers (will send SMS

Unmanaged devices

User (or hacker) can't remotely connect to devices and change important settings

- Some alarms
- Several locks
- Some controllers

A bad surprise :(

If you don't know, how to manage this device, it does not mean, that this device is unmanaged.

- Hidden SMS-commands and password
- Remote reset
- Additional hidden commands

Attacks

Bypass an authorization

Make a call to device or send SMS and try to do something

- Caller ID check
- SMS phone number check
- Password
- Nothing

Attacks on mobile operators

Sometimes it can be easy and effective

- Block SIM-card
- Spend all money
- Change tariff
- Intercept SMS and find passwords

Strange attacks

- Incoming call attack: some devices can’t send alarm signal during another call
- Attacks on detectors

Results

1. An attacker can disable some alarms
2. An attacker can use a microphone to listen to the environment
3. Some doors can be opened remotely
4. A lot of smartwatches for kids are in danger
5. The state of some industrial and smart-homes controllers can be changed

1. Caller ID check usually is insecure
2. 4-digit passwords can be easily bruteforced
3. Hidden passwords and commands can be found

Practical part

1. Attack on electric socket

Plan

1. You can try to call to the number of GSM electric socket from your phone to check, that socket will ignore it.
2. Make a call with SIP-account with changed Caller ID
3 The socket will change the state

- Device phone number: +79117398557
- Owner Caller ID: +79006217078 (already used in SIP-account)

2. Attack on PSTN-alarm

1. Call to the PSTN-alarm with any number
2. Wait up to 30 seconds for an answer
3. You will be asked to type a password (default password is 1234).
4. You can try to bruteforce it (there are limit of 3 attempt for every call)
5. Then you can disable alarm (press 2) or use microphone (press 3)

- Device phone number: +79967774297
- Owner Caller ID: any number

2. Attack on GSM-alarm

1. Call to the GSM-alarm with any number, you can use SIP-account.

3. You will be asked to type a password (default password is 1234, also exist interesting password for settings, try to find it in manual).

4. You can try to bruteforce it (there are limit of 3 attempt for every call)

5. Then you can disable alarm (press 2) or use microphone (press 3)

- Device phone number: +79006490511
- Owner Caller ID: any number

http://tiny.cc/hitb

SIP-account: 267452
SIP-password: workshop1

Zadarma app for IOS or Android