

Name : Rudraksh Komawar

Roll no : 64

Class : CE(2) C - Batch

HOME SECURITY AUTOMATION SYSTEM

1. IDEATE

This idea is inspired by increasing theft in villages, small towns, and even metropolitical cities. The idea is to let you fully control the security of your home.

Code Structure : The code consists of one main function with multiple loops for the user to interact with. Main components are :

- securitystate : Represents the current state of various security system(0 for off, 1 for on)
- Command : used to take the input from the user
- Various Loops : 1. Continuously takes input from the user to control security system
2. checks the input and performs the appropriate action on it.

2. RESEARCH

This project involves creation of a simple code using C language for activation or deactivation of home security . This project is made for the purpose of letting the user access their home security or fire safety feature. Information gathered on this topic is from various online website such as :

1. <https://www.security.org/home-automation/>
2. <https://www.securitymonster.com/what-is-home-security-automation/>
3. <https://forrest-security.co.uk/the-benefits-of-integrating-security-systems-with-home-automation/>

3. ANALYSIS

1. To create a simple interface for controlling the home security systems
2. To implement the functionality of turning security systems ON or OFF
3. To give better experience through user feedback

4. BUILD

This is the phase where the actual code was built

Code :

```
#include <stdio.h>
int main() {

    int fireAlarmSystem, doorLockSystem, fireSprinklerSystem,
    masterSystem;

    printf("                                WELCOME TO YOUR SECURITY
ASSISTANT \n");
    printf("THE MOTION DETECTORS AND SMOKE ALARM HAS DETECTED
SOMETHING CHECK THE CCTV AND TAKE APPROPRIATE STEPS \n ");
    printf("Enter 1 to turn ON, 0 to turn OFF:\n");

    printf("Master Switch (1 = ON, 0 = OFF): ");
    scanf("%d", &masterSystem);

    if (masterSystem == 1) {
        // Full home ON: all systems active
        fireAlarmSystem = 1;
        doorLockSystem = 1;
        fireSprinklerSystem = 1;

        printf("Total Home Shutdown mode ACTIVATED!\n");
        printf("All systems are now ON.\n");
        return 0;
    } else {
        printf("Door Lock System (1 or 0): ");
        scanf("%d", &doorLockSystem);

        printf("Fire Safety Alarm System (1 or 0): ");
        scanf("%d", &fireAlarmSystem);

        printf("Fire Sprinkler System (1 or 0): ");
        scanf("%d", &fireSprinklerSystem);
```

```
// Control Door Lock
if (doorLockSystem == 1) {
    printf("Door Lock is ENGAGED (Unlocked)\n");
} else {
    printf("Door Lock is NOT ENGAGED (Locked)\n");
}

// Control Fire Alert Alarm
if (fireAlarmSystem == 1) {
    printf("Fire Safety Alarm is ON\n");
} else {
    printf("Fire Alarm is OFF \n ");
}

// Control Fire Sprinkler System
if (fireSprinklerSystem == 1) {
    printf("Fire Sprinkler System is ACTIVATED\n");
} else {
    printf("Fire Sprinkler System is DEACTIVATED\n");
}

return 0;
}
}
```

1. TESTING

This code is tested in virtual studio code to ensure that it runs properly and no error occurs while running it.

Case 1 : turning the MASTER SWITCH on

```
WELCOME TO YOUR SECURITY ASSISTANT
THE MOTION DETECTORS AND SMOKE ALARM HAS DETECTED SOMETHING CHECK THE CCTV AND TAKE APPROPRIATE STEPS
Enter 1 to turn ON, 0 to turn OFF:
Master Switch (1 = ON, 0 = OFF): 1
Total Home Shutdown mode ACTIVATED!
All systems are now ON.
```

Case 2 : Turning the master switch off and turning on/off the system Manually

```
WELCOME TO YOUR SECURITY ASSISTANT
THE MOTION DETECTORS AND SMOKE ALARM HAS DETECTED SOMETHING CHECK THE CCTV AND TAKE APPROPRIATE STEPS
Enter 1 to turn ON, 0 to turn OFF:
Master Switch (1 = ON, 0 = OFF): 0
Door Lock System (1 or 0): 1
Fire Safety Alarm System (1 or 0): 1
Fire Sprinkler System (1 or 0): 1
Door Lock is ENGAGED (Unlocked)
Fire Safety Alarm is ON
Fire Sprinkler System is ACTIVATED
```

Case 3 : Turning all system off

```
WELCOME TO YOUR SECURITY ASSISTANT
THE MOTION DETECTORS AND SMOKE ALARM HAS DETECTED SOMETHING CHECK THE CCTV AND TAKE APPROPRIATE STEPS
Enter 1 to turn ON, 0 to turn OFF:
Master Switch (1 = ON, 0 = OFF): 0
Door Lock System (1 or 0): 0
Fire Safety Alarm System (1 or 0): 0
Fire Sprinkler System (1 or 0): 0
Door Lock is NOT ENGAGED (Locked)
Fire Alarm is OFF
Fire Sprinkler System is DEACTIVATED
```

