

Codes:

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LOOP1: MVI A, 9BH
        OUT 83H    ; Initialization of the 2 8255
        OUT 87H
        MVI A, 0FH ; Initialization of 8155
        OUT 88H
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LOOP2: MVI A, 00H
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Port A: IN 80H
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        MOV B, A
        CPI 01H    ; Check if alarm is set
        JZ FIREALARM
        MOV A, B
        CPI 02H
        JZ LIGHT1  ; If motion is detected on each side of the house
        MOV A, B
        CPI 04H
        JZ LIGHT2  ; if motion is detected on the back side of the house
        MOV A, B
        CPI 08H
        JZ LIGHT3  ; if motion is detected at the front door of the house
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Port B: MVI A, 00H
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        IN 81H
        MOV B, A
        CPI 01H
        JZ FRTDOOR
        MOV A, B
        CPI 02H
        JZ BCKDOOR
        MOV A, B
        CPI 04H
        JZ KKDOOR  ; KID AND KITCHEN DOOR STATUS
        MOV A, B
        CPI 08H
        JZ MSTDOOR ; Master room door
        MOV B, A
        CPI 10H
        JZ WINDN   ; Window's status on the north side of the house
        MOV A, B
        CPI 20H
        JZ WINDS   ; Window's status on the south side of the house
        MOV A, B
        CPI 40H
        JZ WINDE   ; Window's status on the east side of the house
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MOV A, B
CPI 80H
JZ WINDW          ; Window's status on the south side of the house

Port C: MVI A, 00H
IN 82H
MOV B, A
CPI 01H
JZ GARAGED       ; Garage door status
MOV A, B
CPI 02H
JZ STOP          ; to display the Stop sign for the obstruction alert
MOV A, B
CPI 04H
JZ FENCEF        ; Status of the fence door in front of the house
MOV A, B
CPI 08H
JZ FENCEB        ; Status of the fence door in back of the house
MOV A, B
CPI 10H          ; Check motions inside of the house to sound the alarm
JZ MOTION
MOV A, B
CPI 20H
JZ SPRINKLER     ; Start or stop sprinkler
MOV A, B
CPI 40H
JZ SOUND        ; Check if Pool door is open or close
HLT

FIREALARM: MVI A, 10H ;Setting up fire alarm port
            OUT 89H   ; Sound fire alarm
            MVI A, 99H ; Changing port B of 8255#1 to only act as output.
            OUT 83H   ; deactivate all door sensors
SWITCH:    IN 80H     ;Read input from port A
            CPI 10H   ;Checking to see if fire alarm has been disabled
            JZ DISABLE
            JMP SWITCH; Go back and read input until fire alarm has been disabled
DISABLE:   MVI A, 00H
            OUT 89H   ;Stop fire alarm
            JMP LOOP1

LIGHT1:    MVI A, 20H
            OUT 89H   ; Turn lights on
            MVI A, 03H
            OUT 89H   ; Display Motion Detected around the house
            JMP LOOP1 ; Restart

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LIGHT2:    MVI A, 20H
           OUT 89H    ; Turn lights on
           MVI A, 03H
           OUT 89H    ; Display Motion Detected at the back of the house
           JMP LOOP1  ; Restart

LIGHT3:    MVI A, 20H
           OUT 89H    ; Turn lights on
           MVI A, 03H
           OUT 89H    ; Display Motion Detected at the front door
           JMP LOOP1  ; Restart

FRTDOOR:  MVI A, 03H
           OUT 89H    ; Display Front Door Opened:
           IN 84H     ;
           CPI 0AAH   ; Check to see if the alarm is activated
           JZ ALARM
           JMP LOOP1

ALARM:    MVI A, 40H
           OUT 89H    ; Sound regular alarm
           JMP LOOP1

BCKDOOR:  MVI A, 03H
           OUT 89H    ; Display Back Door Opened:
           IN 84H     ;
           CPI 0AAH   ; Check to see if the alarm is activated
           JZ ALARM
           JMP LOOP1

KKDOOR:   MVI A, 03H
           OUT 89H    ; Display Kids or Kitchen Doors Opened:
           IN 84H     ;
           CPI 0AAH   ; Check to see if the alarm is activated
           JZ ALARM   ; Sound alarm if activated
           JMP LOOP1

MSTDOR:   MVI A, 03H
           OUT 89H    ; Display Master bedroom Door Opened:
           IN 84H     ;
           CPI 0AAH   ; Check to see if the alarm is activated
           JZ ALARM   ; Sound alarm if activated
           JMP LOOP1

WINDN:    MVI A, 03H
           OUT 89H    ; Display North side Window Opened
           IN 84H     ;

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CPI 0AAH ; Check to see if the alarm is activated
JZ ALARM ; Sound alarm if activated
JMP LOOP1

WINDS: MVI A, 03H
OUT 89H ; Display South side Window Opened
IN 84H ;
CPI 0AAH ; Check to see if the alarm is activated
JZ ALARM ; Sound alarm if activated
JMP LOOP1

WINDW: MVI A, 03H
OUT 89H ; Display West side Window Opened
IN 84H ;
CPI 0AAH ; Check to see if the alarm is activated
JZ ALARM ; Sound alarm if activated
JMP LOOP1

WINDE: MVI A, 03H
OUT 89H ; Display East side Window Opened
IN 84H ;
CPI 0AAH ; Check to see if the alarm is activated
JZ ALARM ; Sound alarm if activated
JMP LOOP1

GARAGED: MVI A, 80h
OUT 89H ; open garage door
JMP LOOP1

STOP: MVI A, 04H ;
OUT 89H ; Display the STOP sign
JMP LOOP1

FENCEF: MVI A, 03H
OUT 89H ; Display Fence Door Front Opened

FENCEB: MVI A, 03H
OUT 89H ; Display Fence Door Back Opened

MOTION: MVI A, 03H
OUT 89H ; Display Motion inside House
IN 84H ;
CPI 0AAH ; Check to see if the alarm is activated
JZ ALARM ; Sound alarm if activated
JMP LOOP1

SPRINKLER: MVI A, 01H
OUT 8AH ; Turn on sprinkle
MVI B, 0FH

DELAY: DCR B ; Delay of 30 min
MOV A, B

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CPI 00H
JZ SPRKOFF
JMP DELAY
SPRKOFF: MVI A, 00H
          OUT 8AH    ; Turn off sprinkler system
          JMP LOOP1
SOUND:   MVI A, 08H
          OUT 89H    ; Pool door is opened: DING sound
          JMP LOOP1
```