

## 6.10P Build a Burglar System using LEGO Mindstorms

### Aim

To make a Burglar Alarm Control System using different input sensors.

### Equipment

NXT kits  
 NXT sensors  
 Material for sign  
 Torch  
 MIndstorms software

### Method

Build a Burglar system:

You will need NXT Brick

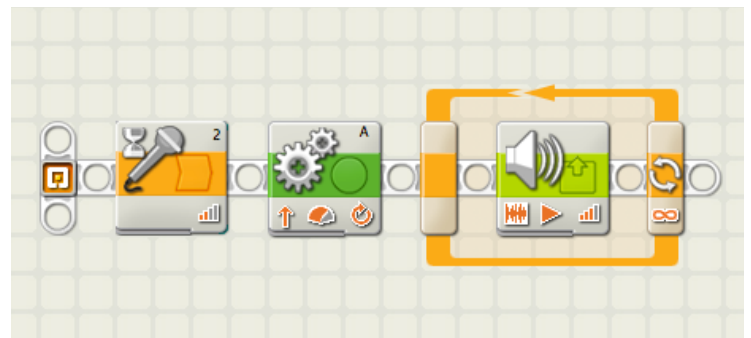
At least one sensor:

Sound sensor, light sensor, ultrasonic sensor, Temperature sensor if you have one.

NXT Motor to raise the “Do Not Enter” sign

Connecting wires.

### Sample Program



#### Task 1. Sound alarm system

NXT, sound sensor and motor

Program

wait for sound

sound an alarm and put up a sign “DO Not Enter”

Test it by making noise

#### Task 2. Light beam system

NXT, light sensor, torch and motor

Build a light beam system (torch light pointing at a light sensor)

Program

Wait for light beam to be broken (< 50)

sound an alarm and put up a sign “DO Not Enter”

Test it by moving between beam and sensor.

#### Task 3 Proximity (distance) system

NXT, ultrasonic and motor

Put a wall or obstacle at least 30cm from the sensor.

Program

Wait for distance (< 30 cm)

sound an alarm and put up a sign “DO Not Enter”

Test it by moving between ultrasonic sensor and the wall.

#### Task 4 Temperature detecting system

NXT, temperature sensor and motor

Program

Wait for temperature (> 30 degrees)

sound an alarm and put up a sign “DO Not Enter”

Test it by putting hand on temperature sensor.

### **Task 5 Deluxe Security system**

NXT, sound sensor, light sensor, ultrasonic and temperature sensor (optional)

Program

Wait for any sensor to be triggered

sound an alarm and put up a sign “DO Not Enter”

Test with any of the previous ways.

### **Conclusion**

**What did you find was the most effective sensor in detecting an intruder or burglar?**

**What did you find was the most effective output device to get peoples attention that there was a burglar?**

**What could you do to override the system, for the owner to enter?**