ANNEXE 1

Switches Used In the Home

Introduction
Switches control lighting, turn on and off devices, and are used as disconnecting means for things like furnaces in your home. There are many different switches that are used throughout the home, depending on the specific needs of that area of the home. There are switches for one location and others for many locations, there are also switches that dim the lights for those special moments. The following articles turn on a light in your head about switches and which ones are best for your next lighting project.

Most Common Switches

In every house there are many different types of switches that can be used. There are standard grade switches that are good and commercial grade switches that are much better. Switches are used to turn things on and off from one or more locations, and some can control the brightness of the light bulbs they control. There is even a time switch that turns the lights on and off at specific times. Which of these switches do you have in your home?

Single Pole Switch

Rotary Dimmer Switch Installed

As you walk into your home, the convenience of switches light the rooms of your home. They complete the circuit to your light fixtures when you turn the switch on to light the light and they break the circuit when you turn off the switch to turn the light off.

Single-pole switches are the most basic switches. They simply turn a light on and off. They come in a variety of colors and are rated for 15 and 20 amps.

Three-way switches control lights from two different locations. By adding a four-way switch between them, you can control lighting from three locations. Common uses for three-way switches are hallways, stairwells, or large rooms like living rooms with more than one doorway in them.

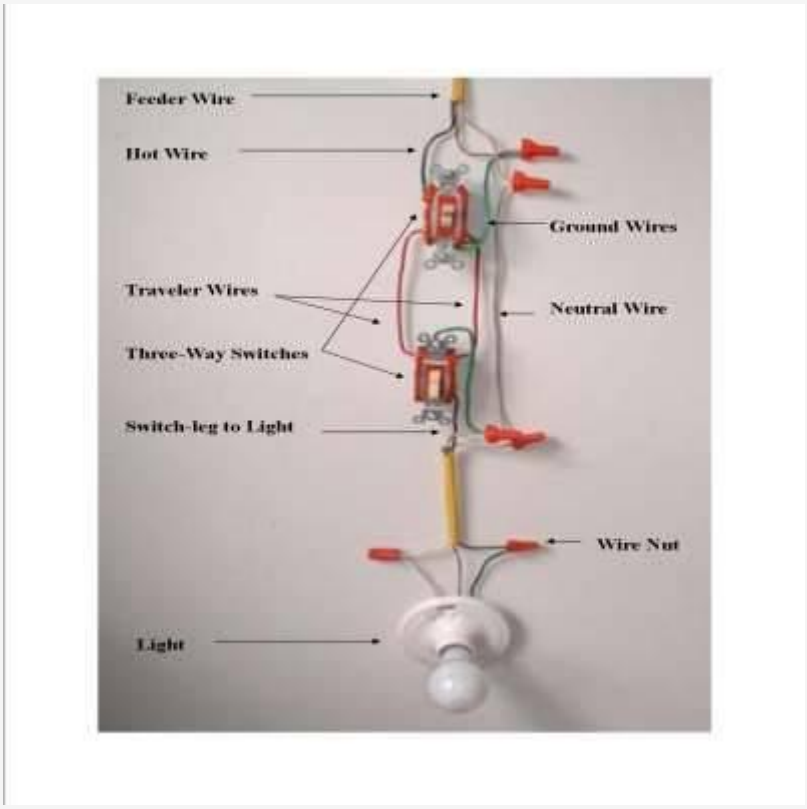
Dimmers switches control a lights brightness or intensity. These switches use rheostats to brighten or dim the lights and are a glorified single-pole switch with options. Dimmer switches often replace single-pole switches in homes. These switches work just fine with incandescent lighting, but specialized dimmer switches are required for ceiling fans and fluorescent lights.

More Details about these 3 most common switches :

Single-pole Switches	A single-pole switch turns a light on and off from one location. The switch has two brass terminals for the "hot" wire connections and a green screw for the ground connection. The toggle handle on the switch is labeled on and off.
Three-way Switch	A three-way switch has two brass screws, a darker colored screw and a green screw. The brass screw are the traveler wire connections. The darker colored screw is for either the "hot" wire or the switch leg. The green screw is for the ground connection. Unlike the single-pole switch, the three-way switch doesn't have the toggle handle switched. That's because one position doesn't mean that is necessarily on or off. It always depends on the position of the other switch.

Anatomy of a Three-Way Switch

Making the Proper Connection



In this diagram, I've assembled a power source (12-2 NM Cable with a ground) feeding two different three-way switches. These would normally be on opposite sides of a room, staircase or hallway. The switches are shown controlling a light.

Notice how the black wire (hot wire) feeds one switch (connected to the dark screw), the neutral wire (white wire) splices and carries on, and the ground wire (bare copper wire) splices, connects and carries on. The switch then has a red and black wire (travelers) that continue to the second three-way switch (connects to the brass colored screws).

At this switch, the ground and neutral wires splice and carry on to the light. The black wire going to the light is connected to the darker colored screw on the switch. Finally at the light, the black wires tie together, the white wires tie together and the bare copper wire connects to the box and the light's ground wire (if it has one).

Rotary Dimmer Switch A rotary dimmer switch is a switch with a rheostat that is used to dim the lights via the switch. Some rotary dimmer switches turn off and others have to have the knob pressed in to shut them off. By turning the knob to the left, the lights will get dimmer. Turning the knob to the right will make them brighter. This is a great switch if you're using accent lighting.

MORE SWITCHES...

What is a Time Switch?

Time Switch

What exactly is a time switch? Could it be some sort of time machine that takes you back in time and makes the switch from now to then? Of course not! The concept is really pretty simple. It is a device with a built in timer that turns a circuit on and off. It simply does the work for you.

Inside the door cover, you'll notice instructions on how to use the time switch and the rating limits for the the time switch. This particular time switch is rated for 40 amps, 125 volts, 4375 watts, 690 VA pilot duty, and 1 HP.

Time switches are great for indoor or outdoor lighting, small outdoor pond pumps, swimming pool pumps, and other devices that need to be turned on and off throughout the day.

The time switch time is set by lifting up on the timer dial and turning it to the proper time. This is set by lining the time of day on the dial, with the silver time arm in the center of the dial. Caution! Do not turn the center time arm pointer! When power is applied to the time switch, the motorized dial will keep time, just like a clock or watch.

As the dial advances, it triggers "on" and "off" trippers. These are bolted on the face of the dial and turn the switch "on" and "off" at the time you select on the dial. You can set as many times as you want, which makes this a nice feature. The switch it controls is basically a single-pole switch, which is either "on" or "off".

What Is A Motion Detector Switch?

> ***An automated switch that turns the lights on for you by detecting movement.***

When you think of switches, you usually think about walking in your home and reaching out to flip a toggle switch in order to turn on the light. But there is an easier way and it is called a motion detector switch. It is a specialized switch that detects movement in your home by using infrared or ultrasonic sensors. I know it sounds space-aged, but it really works. The very fact that it senses motion is a great selling point, but add the fact that it can also sense sound makes this switch a must-have in my book.

When someone enters a room equipped with a motion detector switch that is armed with this technology, it turns on the light connected to it and remains on until there is no motion or sound in the room. If you've ever left your home and forgot to turn off the lights or got up in the middle of the night to go to the bathroom or downstairs, only to stub your toe before you got to the light switch, you'll really appreciate the motion detector light switch!

There are many variations of these switches that is determined by the manufacturer. Some of the motion detector switches have a neutral wire connection to power the LED, while others do not. Be sure to check the wiring schematic that comes with your specific model of switch to ensure you wire it correctly. Normally, the motion detector switch will have three wires. The black wire connects to the incoming "hot" wire which supplies the power to the switch. The blue wire is connected to the outgoing wire connected to the light that is called the switch leg. The green wire is always used only for a ground wire.

The motion detector switch is composed of these wires, connected to a large eye that protudes from the front of the switch, usually located on the top of the switch. It scans 180° from its position on the wall. It is a solid-state electronic switch that can be damaged by incorrect wiring or handling of the product.

There are two variations of this type switch, the active sensor switch and the passive sensor switch. Active sensors, often referred to as radar-based, send out sound waves into the room, like your garage door opener does and waits for the signal to return. You may have had a garage door that always opens when it thunders. That's because a frequency was generated that matched the one that tells your garage door opener to open the door.

Passive sensors, on the other hand, have their own unique way of detecting movement. Called passive infrared sensors (PIR) and sometimes called pyroelectric detectors, they are used frequently in homes and businesses alike. They detect heat from the body of humans and animals alike. The sensor uses a photo detector which which coverts light in the wavelengths into electrical current that triggers an alarm in the mini computer housed in the detector. It triggers the switch to turn on. The exception is, the computer ignores slow changes in room temperature due to sunlight.

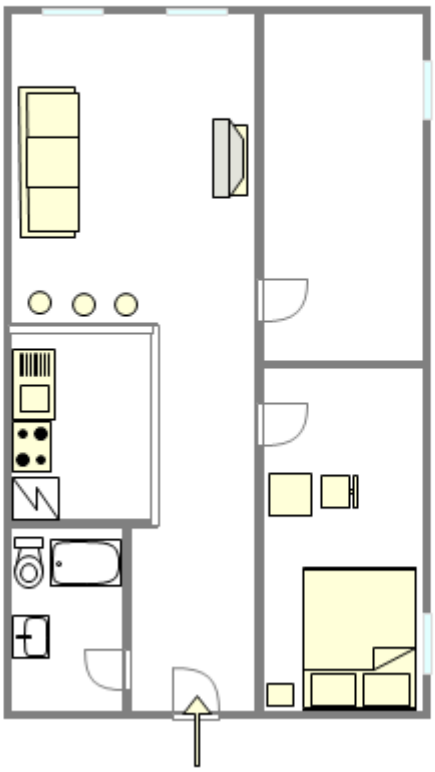
These type of switches are not limited to the interior of the home. There are also outdoor versions that detect movement from traffic driving up your driveway. These driveway alarms are used to notify someone in your home that you have company, giving you a heads-up before they reach the door. They are also used in things like deer cams and door entry alarms. The one I have is placed across the room from the door and detects customers as they come in the front door. It then sends a signal to a remote unit upstairs that sounds an alarm. That way, I don't have to sit and watch the video monitor while I eat lunch. That allows me to be aware of customers, eat lunch and watch TV for a few minutes without worrying about missing someone and causing them to wait impatiently.

ANNEXE 2

Step 2 : Find where to put switches in an apartment, discuss with your team which kind of switch would be most appropriate.

Here is the plan of a two bedroom apartment

Floor area 65.0 m² - *4th floor*



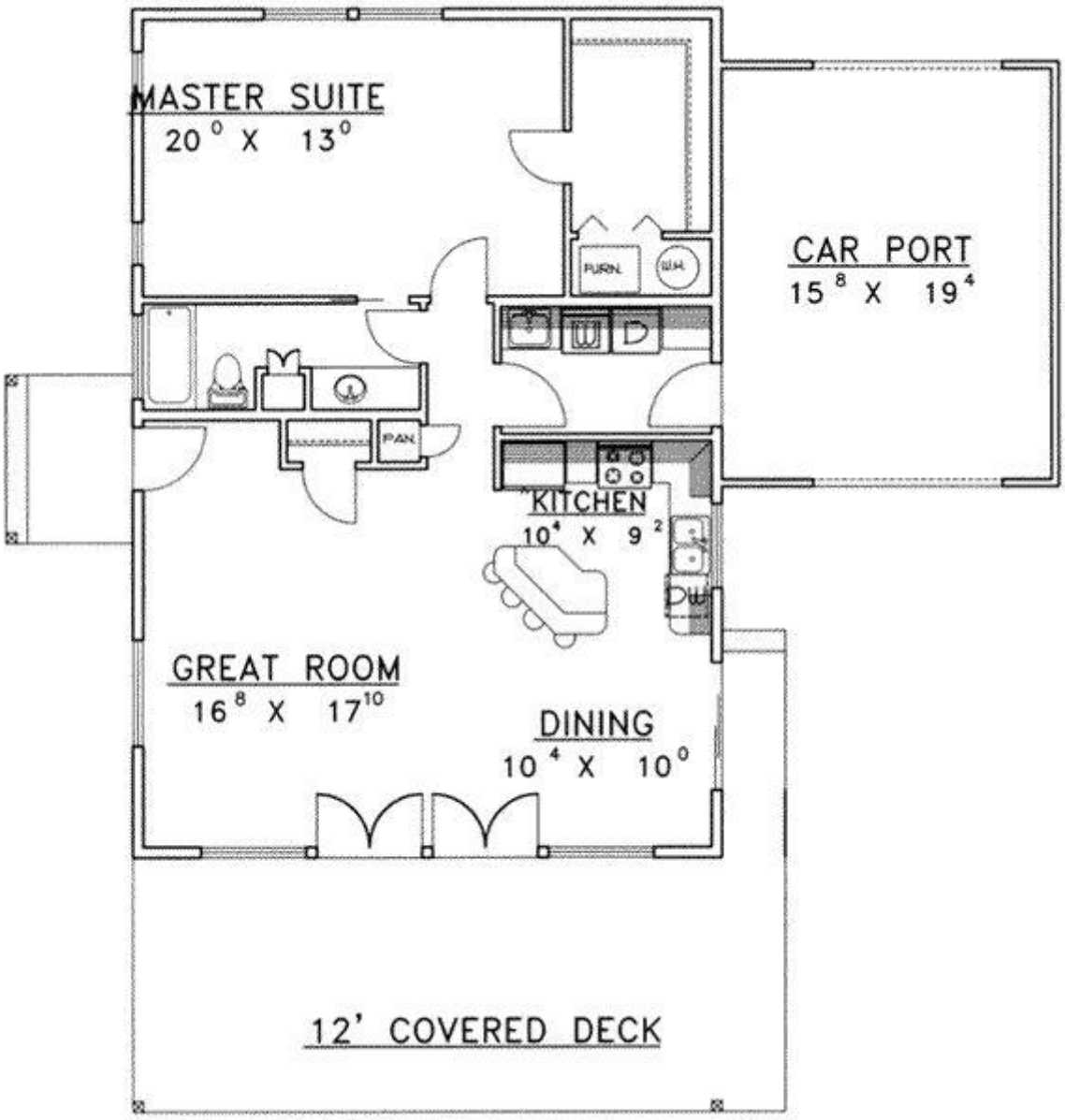
With the help of your colleagues

- **find the best places for switches.**
- **think about the most convenient type of switch for each part of the apartment. Justify your opinion and choices**
- **take down notes**
- **present your ideas to the other teams**

ANNEXE 3

Customer’s house :

swimming pool behind the house



Levels	**1**
Bedrooms	**1**
Potential Bedrooms	**0**
Baths	**1**
Garage Stalls	**1**