The purpose of a dual technology motion sensor is to be able to detect motion with the fewest false alarms. The sensor is then connected to a system that then produces an intended effect. Motion sensors can be used in automatic lights, security systems, and even the automatic doors at the entrance of many stores (How Stuff Works, 2000). My computational artifact demonstrates how dual technology motion sensors collect and use data and the effects these signals can trigger in a system.

To create my artifact I used the Notability app to draw my diagrams. Notability is a drawing and note taking app, that allows you to draw lines, shapes, and highlights. I used my diagrams to create a visual representation of how the innovation works. I then took my diagrams and put them in the Google Slides program to arrange them, add text and arrows, and show how data flows through the innovation. Google Slides in program that allows you to create slide shows that combine pictures, text, shapes, lines, etc. without having to physically draw them like in Notability.

Motion sensors can be used in home security systems to sense the movement of an intruder, a teenager breaking curfew, or a pet in a room of the house they are not allowed in. This could benefit our society by increasing the safety and order in our homes (Tross, 2019). Motion sensors can sense movements in your home and connect to your home security system. Once the system is tripped it can send an alert to your phone, automatically call the police, sound an alarm, and/or trigger a camera to start recording (Harris, 2001). Motion sensors can also be hooked up to lighting systems. This can help save energy by only having lights on when a room is in use, which would be beneficial to lowering overall energy use.

A harm of motion sensors in the possibility of false alarm, which could cause an increase in feelings of anxiety in our society. Motion sensors can be tripped by people walking in your yard or trying to open your door, but they can also make “nuisance trips” (The Family Handyman Magazine, 2019). Trips like these would include when your system goes off because of changes in the sun or weather (Lou, 2019), this would also include if your dog set off the system, someone walking on the sidewalk, or leaves blowing by. (The Family Handyman Magazine, 2019). The widespread use of motion sensors in home security could negatively affect the culture of a neighborhood and promote a lack of trust.

In dual technology motion sensors motion is sensed and data is collected in two ways. The first sensor is the Passive InfraRed (PIR) Sensor which measures levels of infrared radiation. The PIR uses a system of grids to cover the entire room. A fresnel lense increases the range of the sensor. Each part of the grid has two sections that measure the difference in infrared radiation between the two. This change in radiation is due to the movement of a mass. If a change in infrared radiation is detected a signal will be sent to the server (Ada, 2014). The second sensor is the MicroWave (MW) sensor. This sensor sends out waves and tracks them as they bounce back at the sensor. The server is notified if the sensor detects motion by changes in wave lengths, or if a wave doesn’t return. If both the PIR and MW sensors detect motion then the system will activate. The combination of the two sensors helps to prevent false alarms (Tross, 2019).

Most motion sensors are hooked up to a system that is connected to the internet which means that someone could potentially hack your sensors and steal data in the form of video recordings of your home or even the home models formed by the data collected by the sensors.

This also means that your system could be hacked and even when motion is sensed the data could be blocked from the server and your alarm could not go off (Li, 2019).

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