*Unit 5 Sensors

Content Area: **Technology**
Course(s): **Robotics**
Time Period: **December**
Length: **6 blocks**
Status: **Published**

Transfer Skills

There are a large number of senors, that work in analog and digital format, that can interpret a wide range of information and be used in conjunction with outputs to provide autonomy in a system.

Enduring Understandings

1. There are a multitude of sensors that can output signals based on the environment around them.

2. Sensors can provide analog or digital feedback.

3. Sensors can be adjusted using complex electrical circuits to vary their sensitivity and to establish desired outcomes.

4. Feedback from sensors can be used and interpreted using computer programs.

5. Multiple sensors can be compared to one another in the same program to provide additional information.

6. The information gather by sensors can be displayed in a graphical format or used within a program to drive later functions.

Essential Questions

1. What is a sensor?

2. In what situation would analog feedback from a sensor be used?

3. In what situation would digital feedback from a sensor be used?

4. In what objects would you find adjustable sensors?

5. How would robots use sensors?

Content

Vocabulary:

Digital sensor, Analog sensor, Push-button sensor, Temperature sensor, Stress sensor, Color sensor, Light sensor, Ultrasonic sensor, Infrared sensor, Gyroscopic sensor, Moisture sensor

Skills

1. Describe how a particular sensor outputs a signal.

2. Create a system in which the sensor outputs an analog signal.

3. Create a system in which the sensor outputs a digital signal.

4. Create a system in which the sensitivity of the sensor can be adjusted.

5. Write a computer program that uses the input of sensors to control an output.

Resources

Desktop computers

Programming software

Robotics platform compatible with software

Robotics peripherals

Robotics sensors

Standards

TECH.8.2.12.D.CS1	Apply the design process.
TECH.8.2.12.E.1	Demonstrate an understanding of the problem-solving capacity of computers in our world.
TECH.8.2.12.E.3	Use a programming language to solve problems or accomplish a task (e.g., robotic functions, website designs, applications, and games).
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
TECH.8.2.12.E.CS1	Computational thinking and computer programming as tools used in design and engineering.