Arduino Challenge

Challenge Description

In this challenge you will use arduino to engineer a solution to a problem that you or members of your community face. Try to think of a problem that has a solution that can be achieved within the time frame of the challenge (from now until the end of the school year). For example, you may not be able to create a self driving car in the timeframe but you would be able to create a backup sensor for a car!

Assignment

1. Pick a problem.
2. Come up with an idea for a solution.
3. Use one sensor in your solution.
4. Use one communicator in your solution.

Example Problem

People often bump their cars into obstacles leading to dangerous and expensive outcomes.

Example Solution

Use a ultrasonic distance sensor to detect obstacles behind a car. When obstacles get within a range, use arduino to alert the driver using a tone from a piezo buzzer.

Sensing

You must use at least one sensor in your solution. The following are a few examples or you can pick one for approval by navigating to sparkfun.com/categories/ and clicking sensors . Some sensors not listed measure force, flex, ir and many more so please take your time to explore your options.

Name	Function	Potential Uses
Photocell	Senses ambient light	Start a process when a light is turned on or off.
TMP36 Temperature Sensor	Temperature Sensing	Weather station (Not for high temperature above 250F)

Tilt Sensor	Senses if an object is tilted	Audio level tool
Accelerometer	Measures acceleration	Automatically call emergency if elderly person falls.
Ultrasonic Distance Sensor	Measures Distance	Backup sensor (Works up to about 10 feet)
Gas Sensor	Detects levels of gases	Carbon monoxide alarm

Communicating

Your project must use one part that communicates something to the outside world below are some examples. There are many ways to communicate and you can submit your part for approval if you find one on sparkfun.com

Name	Function	Potential Uses
Piezo Buzzer	Create beeping tones	Alert a driver that they are close to an obstacle
16X2 LCD Screen	Displays characters on a screen	Output the current temperature on a screen
Bluetooth module	Connects to devices using bluetooth	Send info to phone/computer