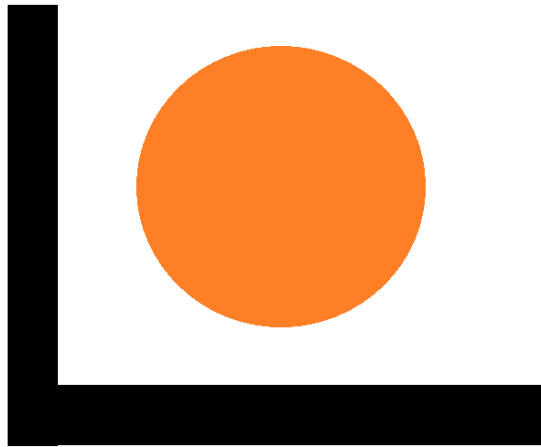# Example Seeing if a game piece is inside a mechanism

Sometimes you'll need to see if a game piece is inside of the robot. This can make automating a subsystem possible but it is hard to pick a sensor.

For this example we are going to look at sensors that are good at checking if something is there.

for this example we need to check whether the orange ball is inside of the intake or not.
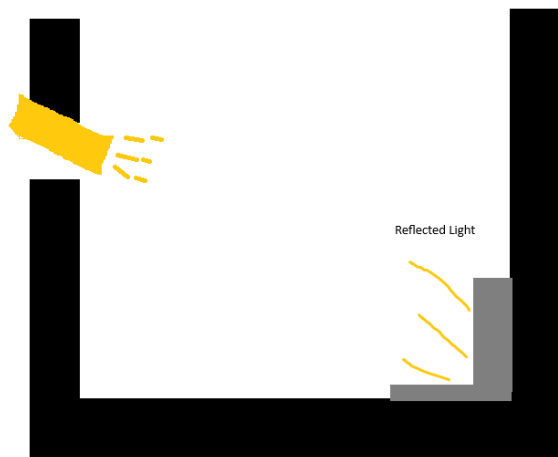
First option photo electric sensor

shopping.webp

These sensors measure reflected light from a surface and provide a digital output based off of a potentiometer that is tuned by turing a knob.

Pros

- cheap and we have many
- easy to tune
- easy to program for
- reliable mechanically and functionally
- low latency sensor

Cons

- Can be set off from lighting in a venue to prevent this point them down or at an angle and place a 3d printed focuser on them to point them at where the game piece should be.
- Can be set off from light reflected by something shiny on the robot. To prevent this put nonreflective IR tape on the robot. Below is an example on this problem. Along with the sensor
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Reflected Light

Another option is to use a Color Sensor