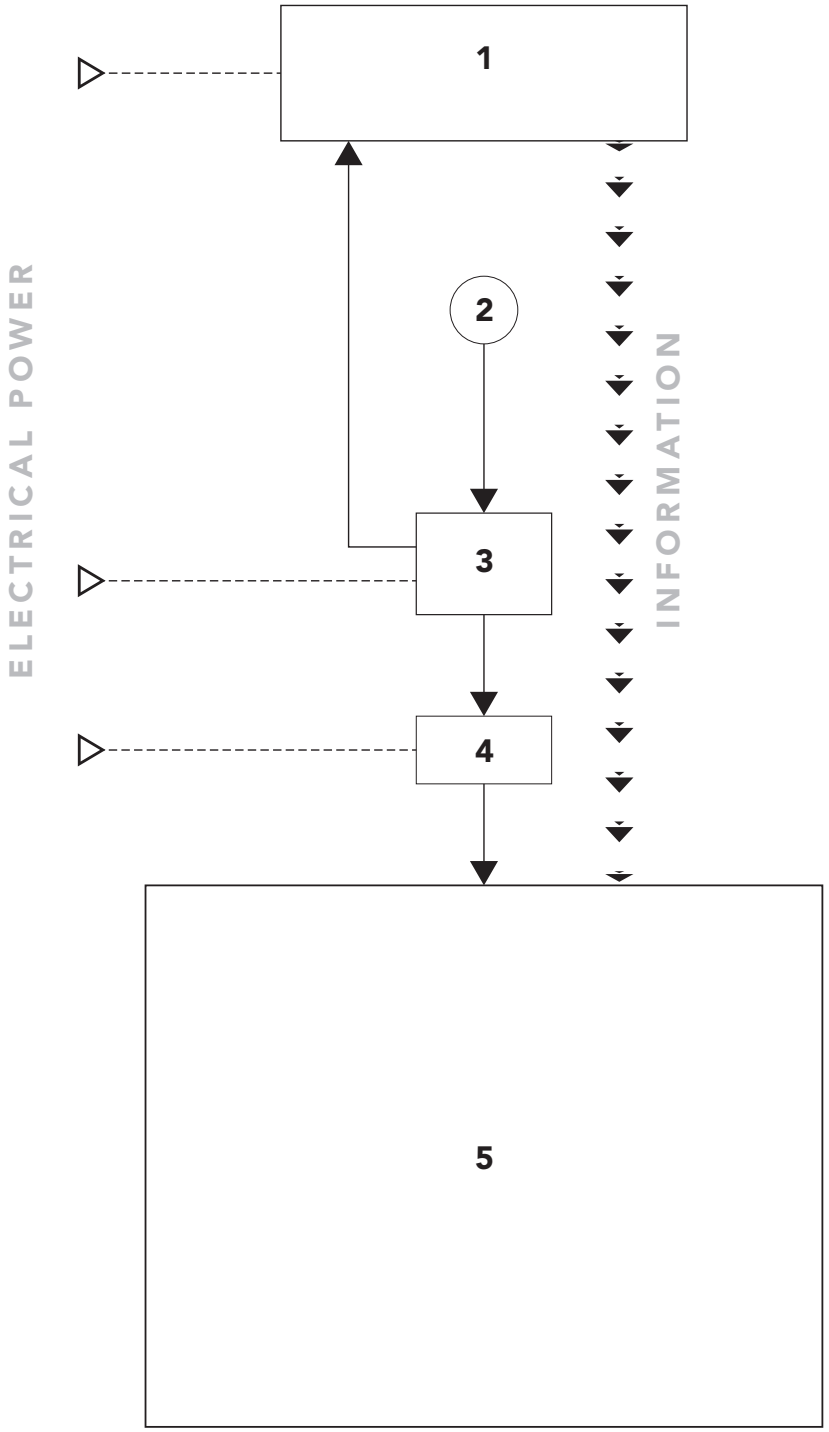
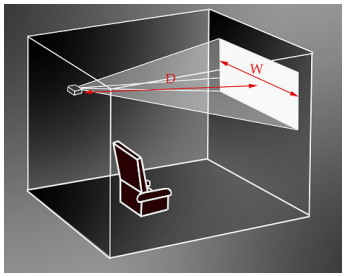


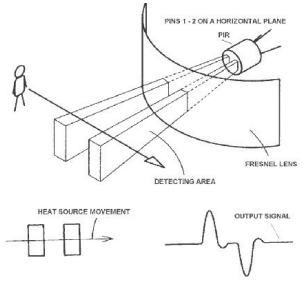
1 ULTRA SHORT THROW PROJECTOR

A projector's throw ratio is defined as the distance (D) that a projector is placed from the screen, divided by the width (W) of the image that it will project (D/W). This projector has a throw ratio of 0.36, while a standard projector has a throw ratio of about 2.



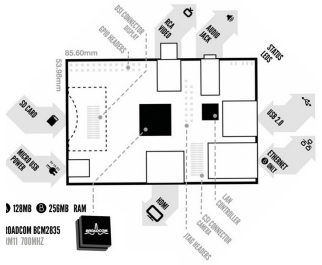
2 PASSIVE INFRARED PROXIMITY MOTION SENSOR

The PIR sensor itself has two slots in it, each slot is made of a special material that is sensitive to IR. When the sensor is idle, both slots detect the same amount of IR, the ambient amount radiated from the room or walls or outdoors. When a warm body like a human or animal passes by, it first intercepts one half of the PIR sensor, which causes a positive differential change between the two halves. When the warm body leaves the sensing area, the reverse happens, whereby the sensor generates a negative differential change. These change pulses are what is detected.



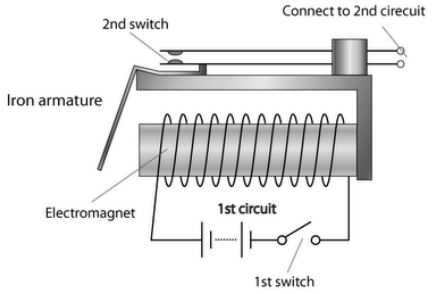
3 RASPBERRY PI

The Raspberry Pi is a very low cost ($25-$35) credit card sized linux computer. The Raspberry Pi's GPIO (general purpose input/output) pins allow you to attach sensors and control external devices.



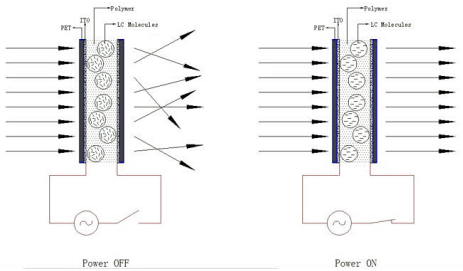
4 POWERSWITCH TAIL 2

This electrical relay allows you to switch 120V AC power on and off using a 3.3V DC control signal from the Raspberry Pi. The relay uses an electromagnet to open and close the circuit (listen for the click).



5 SMART FILM

Smart film, also called Switchable film, is a product that is capable of adjusting light transmission between transparent and opaque using AC power. Without power the liquid crystal molecules (microdroplets) are disordered. This prevents light from penetrating the film, rendering it opaque. When power is applied to the smart film the liquid crystal molecules are forced into alignment, rendering it transparent.



windowtoggle.py

```
import RPi.GPIO as GPIO
import time
from subprocess import *
GPIO.setmode(GPIO.BCM)
# GPIO Pin 25 controls the electrical relay powering the smart
screen
GPIO.setup(25,GPIO.OUT)
# GPIO Pin 24 reads the input from the motion sensor
GPIO.setup(24,GPIO.IN)
#Wait 10 seconds at least between movies
pauseTime=10
movieList=['/home/pi/Movies/CosmicWeb_43.mov','/home/pi/Movies/
Herschel_43.mov','/home/pi/Movies/CARMA_43.mov','/home/pi/
Movies/Sundial_43.mov','/home/pi/Movies/Streams_43.mov']
iMovie=0
playingState = False
GPIO.output(25,GPIO.HIGH)
while True:
        while playingState:
          # If motion detected, play next movie in list
          if (GPIO.input(24)==True):
               GPIO.output(25,GPIO.LOW)
               call(['omxplayer',movieList[iMovie]])
               iMovie=iMovie+1
               iMovie=iMovie % len(movieList)
               call('clear')
               playingState = False
          time.sleep(0.5)
        GPIO.output(25,GPIO.HIGH)
        call('clear')
        time.sleep(pauseTime)
     playingState=True
```