* **Goal**: Turn mechanical switch into electrical switch by using the raspberry pi’s GPIO pins to control the electrical switch.
* An electronic switch is characterized by having the two states “on” and “off”, ideally being either a short circuit or an open circuit. They are considered desirable because of the relatively small power loss in the device.
* Potential Solutions: BJT, MOSFET, Relay, Diode
* BJT
  + Current controlled
  + Used for applications of low current
  + Relation between input and output is referred to as be linear
  + Non-expensive
  + Dissipates small amounts of heat when reaches saturation mode
  + Turned on by providing sufficient base current to put into saturation mode
* MOSFET
  + Voltage controlled
  + Applications of high current
  + Smaller in size
  + Dissipate more heat when in saturation mode
  + Need large gate-to-source voltage to turn on device
  + Switching speeds are greater than BJT
* Relay
  + Slower switching speed
  + Have operating life
  + Work with AC and DC
  + Work at extreme temperatures
  + Can protect the battery and raspberry pi if other components downstream are shorted
* Diode
  + Simplest type of electronic switch
  + Uncontrollable
    - On and off are determined by voltages and currents in the circuit
  + Have reverse recovery current
    - Important in high frequency applications

All information coming from Hart, D. (2010). *Power Electronics*. McGraw Hill.