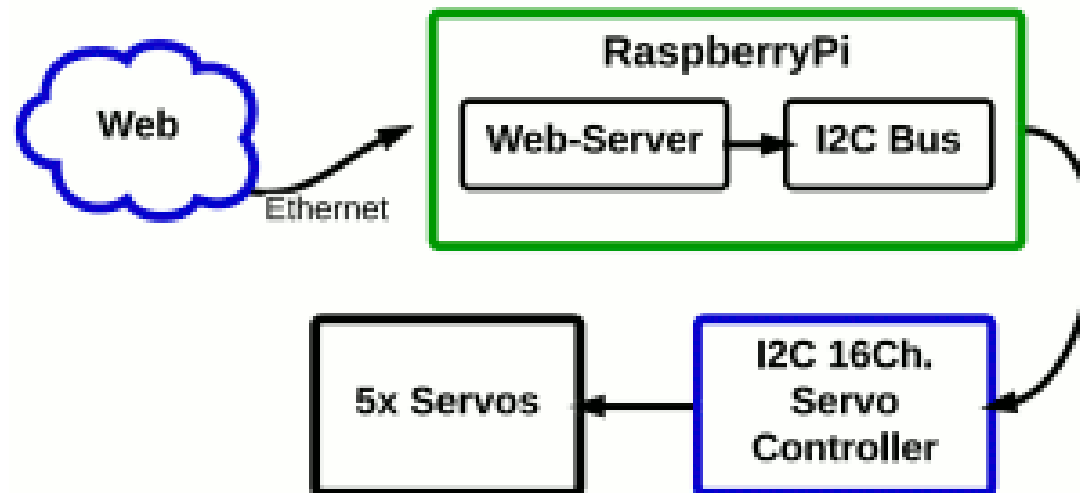


# Servos

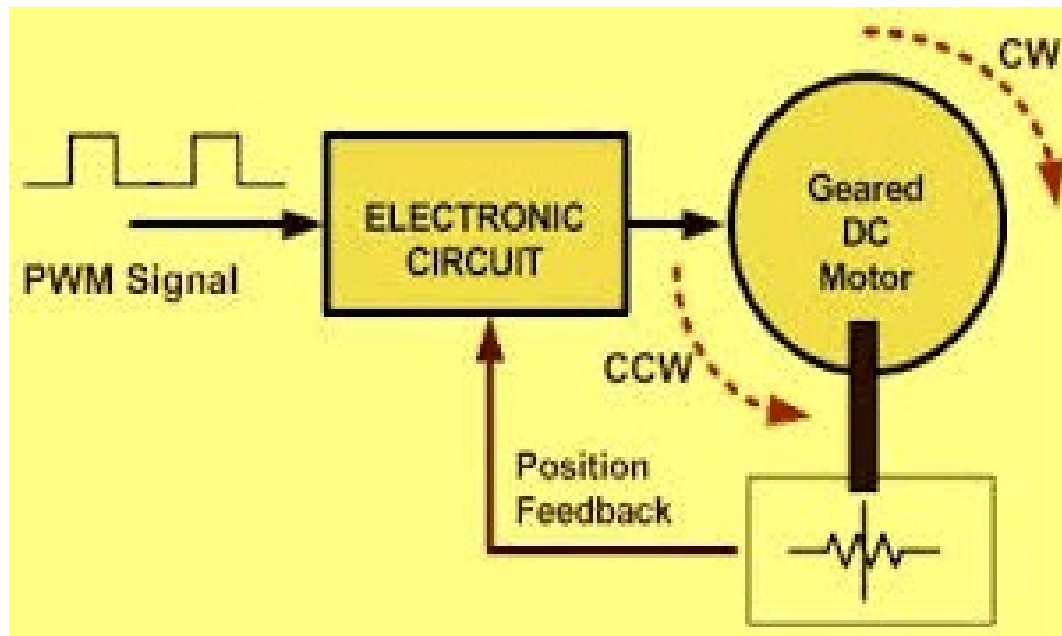
## Servos

PCA 9685 16-channel, 12-bit PWM  
Control using Adafruit Python Library  
Control using WebIOPi



# Servos

A past presentation on **servos**



# A Servo Controller

- The **PCA 9685** 16-channel, 12-bit PWM servo driver
- Adafruit's **learning guide**
  - Follow the learning guide from beginning to end
    - Your RPi should already be configured for I2C
    - You will need to have Git installed on your RPi to download Adafruit python PCA 9685 library
    - If needed install Git with the following command:  
`sudo apt-get install git-core`
    - Install your servo on channel 0 and verify that it runs using `ServoExample.py` before proceeding

# Using Webiopi with the PCA 9685

- **Before Starting** undo the **changes** made to the serial port setup:
  - Edit /etc/inittab to uncomment the following line:  
T0:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100
  - Edit /boot/cmdline.txt to replace references to ttyAMA0:  
dwc\_otg.lpm\_enable=0 console=ttyAMA0,115200  
kgdboc=ttyAMA0,115200 console=tty1  
root=/dev/mmcblk0p2 rootfstype=ext4  
elevator=deadline rootwait
  - Reboot after changes and before proceeding

# Using Webiopi with the PCA 9685

- Download servo-control:

```
wget http://www.cs.unca.edu/~bruce/Fall14/servo-control.tar.z
```

- Move the archive file to the WebIOPi examples directory and unpack with the following command:

```
tar xvfz servo-control.tar.z
```

- Modify `/etc/webiopi/config` to use the servo-control code (& not the serial port):

- Under SCRIPTS

```
myscript = /home/pi/WebIOPi-0.7.0/examples/servo-control/script.py
```

- Under HTTP

```
doc-root = /home/pi/WebIOPi-0.7.0/examples/servo-control/
```

- Under DEVICES

- Make sure all serial devices are commented out
- Uncomment `pwm0 = PCA9685`

- Run WebIOPi and use the buttons in the browser window to control the servo on channel 0

# WebIOPi PCA 9685 Interface

- Look at the WebIOPi documentation under **Analog Converters**
  - Note the methods listed
  - Explain how the code in servo-control is changing the servo speed