Bacon Cape Python

<https://github.com/adafruit/adafruit-beaglebone-io-python>

Beaglebone Cheese Webcam Booth (for beaglebone camera cape)

<https://packages.debian.org/stable/cheese>

* Can be used with any program found on that website

1. sudo apt-get update
2. sudo apt-get install cheese
3. Removal: sudo apt-get remove cheese
   1. To remove any programs from beaglebone

Stepper Motor Video Tutorial

<https://www.youtube.com/watch?v=GkXdtrVdOrc>

DC Motor (use uBlock origin)

<https://learning.oreilly.com/library/view/beaglebone-cookbook/9781491915660/ch04.html>

Camera memory

* Camerama or Streamer
* text based or cmd based

Psuedocode for Towers of Hanoi

* <https://www.cs.cmu.edu/~cburch/survey/recurse/hanoiimpl.html>

| def moveTower(height, fromPole, toPole, withPole):  if height >= 1:  moveTower(height-1,fromPole,withPole,toPole)  moveDisk(fromPole,toPole)  moveTower(height-1,withPole,toPole,fromPole)  def moveDisk(fp,tp):  print("moving disk from",fp,"to",tp)  moveTower(3,"A","B","C") |
| --- |

Controlling DC Motors with GPIO

* <https://www.cs.sfu.ca/CourseCentral/433/bfraser/other/2014-student-howtos/ControlDCMotorViaGPIO.pdf>

Beaglebone Stepper Motor Guide w/ Python

<https://www.youtube.com/watch?v=GkXdtrVdOrc>

| Implementing Stepper Motors:   1. Import libraries: Adafruit\_BBIO, time, etc. 2. Pin assignment with variables:    1. W1 = “P9\_11”    2. W2 = “P8\_7”    3. W3 = “P9\_12”    4. W4 = “P8\_8” 3. Define function for switching coils on/off [coilOn() and coilOff()] 4. Define function for step sequences [coil numbering starts from LSB]    1. 5 → 0101 [coil 1&3 on, coil 2&4 off]    2. 9 → 1001 [coil 1&4 on, coil 2&3 off]    3. 10 → 1010 [coil 1&3 off, coil 2&4 on]    4. 6 → 0110 [coil 1&4 off, coil 2&3 on] 5. Define function for rotating stepper motor in clockwise & anticlockwise direction    1. antiClockW()    2. clockW() 6. Define Main Program    1. Call antiClockW function 12 times to make 360 rotation    2. Call ClockW function 12 times to make 360 rotation    3. 360 degree rotation = (step angle) \* (pulse rate) |
| --- |

Towers of Hanoi Rig Idea?

<https://www.hackster.io/ArduinoFT/3-axis-robot-solves-towers-of-hanoi-ce5fb6>

Mindstorm motor controlling pointers

<https://www.hackster.io/mtashiro/autobot-using-lego-nxt-motors-and-sensor-56ad60>

* look up “lego mindstorm motor schematic”

<http://www.aimagin.com/learn/index.php?title=DC_Motor_(Lego_Mindstorms_NXT_Motor)_Simulation_and_PID_Position_Controller_Design>

<https://www.wayneandlayne.com/bricktronics/downloads/#hardware>

<http://www.philohome.com/nxtpwr/pwr.htm>

<http://trivox.tripod.com/lego-nxt-motor-input-output.html>

* pin I/O coding

<https://learn.adafruit.com/setting-up-io-python-library-on-beaglebone-black/pwm>

<http://www.toptechboy.com/tutorial/beaglebone-black-lesson-6-control-pwm-signals-on-gpio-pins-from-python/>

<https://circuitpython.readthedocs.io/projects/busdevice/en/latest/api.html>

<https://learn.adafruit.com/i2c-addresses/the-list>

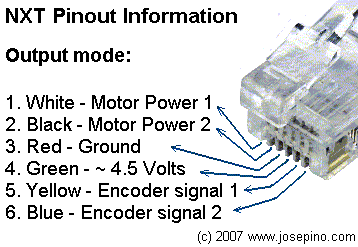
* motor direction controlling hardware

<https://core-electronics.com.au/tutorials/motor-drivers-vs-motor-controllers.html>

* motor control software  
  <http://wiki.seeedstudio.com/Motor_Bridge_Cape_v1.0/>  
  <https://forum.seeedstudio.com/viewtopic.php?f=38&t=6881&p=25049&hilit=motor+cape+address&sid=6799895d4328602ee113e98b43c30483#p25049>

BeagleBone Python Stepper Motor Module

<https://github.com/petebachant/BBpystepper>



<https://www.instructables.com/id/A-BeagleBone-Tutorial-Getting-Started-With-Motor-B/>

<http://wiki.seeedstudio.com/Motor_Bridge_Cape_v1.0/>

* Motor bridge cape tutorial

| How to navigate & make Python files on Debian:   * Type in: ls   + Shows available directories to navigate * Type in: pwd   + Shows which directory you’re in * Type in: cd ..   + Move to previous directory * Type in: cd (directory)   + Goes to specified directory   + Ex: cd /home/ * nano pythonfile.py |
| --- |
| Need to clone this Github repository for Motor Cape   * <https://github.com/Seeed-Studio/MotorBridgeCapeforBBG_BBB>   **Do:**   * git clone https://username@github.com/org/project.git   **or (insecure)**   * git clone <https://username:password@github.com/org/project.git> |

PuTTY into Beaglebone Black

* <https://www.reddit.com/r/BeagleBone/comments/8wkltk/problems_with_ssh_and_login_as_root/>
* <https://www.youtube.com/watch?v=u_ohQMGV4Ug>
* <https://groups.google.com/forum/#!topic/beaglebone/zKMGGQWCOTw>

Button Wiring Diagram (Python)

* <https://learn.adafruit.com/connecting-a-push-button-to-beaglebone-black/wiring>
* Can use motor.DCMotorStop(MotorName) with button to stop motors?

Relay usage

* <https://www.youtube.com/watch?v=BQOji4i4PEc>

SSH login details

* IP Address: beaglebone-2.local
* Login as: debian
* Password: temppwd
* Login info for root:
  + Login as: root
  + Password: temppwd

| import MotorBridge  import time    MotorName = 1  ClockWise = 1  CounterClockWise = 2  PwmDuty = 90  Frequency = 1000    if \_\_name\_\_=="\_\_main\_\_":  motor = MotorBridge.MotorBridgeCape()  motor.DCMotorInit(MotorName,Frequency)  while True:  motor.DCMotorMove(MotorName,ClockWise,PwmDuty)  time.sleep(2)  motor.DCMotorMove(MotorName,CounterClockWise,PwmDuty)  time.sleep(2)  print "hello"  motor.DCMotorStop(MotorName)  time.sleep(2) | # motor bridge lib  #motors1-4 on board  #can use 3 to stop motor  #can use pwm and freq for  Crane as it goes down?  #time.sleep(sec) |
| --- | --- |

Gantry robot

* <https://www.youtube.com/watch?v=7wkoQVYMA_U>

Possible design

* <https://www.youtube.com/watch?v=nvr74dZCPZU>
* <http://www.nxtprograms.com/robot_arm/steps.html>

<https://www.instructables.com/id/Make-My-MotorBridgeCape-Work/>

<https://community.seeedstudio.com/Problem-with-Motor-Bridge-Cape-t-5381.html>

Bridge cape fix?

* <https://forum.seeedstudio.com/viewtopic.php?t=8438>
* <https://forum.seeedstudio.com/viewtopic.php?f=38&t=7656&sid=075650870607adf05b73a8c0d066f70a>
* <https://forum.seeedstudio.com/viewtopic.php?f=38&t=7045&sid=075650870607adf05b73a8c0d066f70a>
* Must disable audio and video?
* Forum: <https://groups.google.com/forum/#!forum/beagleboard>
* <https://groups.google.com/forum/#!category-topic/beaglebone/ZXl_hxE9lBY>