

Lab 02 - February 16

morning session: 10am-2pm in 226

afternoon session: 3pm-5pm in 35-308

Color key: **blue** is what students should read; **orange** is important/needs attentions; **red** is urgent / past due; **green** is done (yay!)

Summary for morning session: if you need to go you already know it.

Summary for afternoon session: this is a lab during regular class time. Bring the Duckiebox. Bring a laptop with Ubuntu (if you can).

- Main channel for this event is: **#lab02-feb16**
- Other relevant channels:
 - **#equipment** I don't have X, etc
 - **#help-for-accounts** permissions for documents
 - **#help-assembly** for help in assembling
 - **#help-network** for all network issues
 - **#help-ros** for help in setting up ROS
- **Important documents for the morning session (10am - 2pm):**
 - the "What's in the boxes" Spreadsheet for equipment
 - Assembly guide
 - The Scuderia file
- **Important documents for the afternoon (3pm-4:30pm): Please have all of these open:**
 - **Lab 02 Status document:**
<https://docs.google.com/spreadsheets/d/1n3blmpmqM1MaoxdJ7aqD DxnzHI9ifdgT8SjKmciaqfBA/edit?usp=sharing>
 - Setup Step 1.9 - Github basics - (includes setting up SSH keys)
 - Setting up Ubuntu Laptops and the Duckietops
 - Setup Step 2.0: From SD Card to RC
 - Setup Step 2.05 - RC control, with demo launched remotely
 - Setup Step 2.1 Joystick + camera output in remote laptop

Goal 1: By 2pm, the remaining Duckiebots have been tested by our testers (tested by Hang). We are confident that nobody will have HW issues later when they try RC.

Goal 2: By 5pm, 50% of the robots have been moved by RC

Mac + Teddy: connect to duckietown-5GHz

Staff who are around for **Tuesday 10am-2pm in 32-262**: LP, HZ, (emergency - AC)

Staff who are around for **Tuesday 3pm-4:30pm in 35-308**: LP, HZ, AC, SY, MN

Timeline for Tuesday

by 12:00am

- everybody (staff or students) is given a complete plan
- SY can you provide by tonight 11:59pm an ubuntu image that when flashed:
 - a) corresponds to a partition of 16GB (or 32 GB as stretch goal)?
 - b) does not contain persistent-rules file?
- MN tonight will check whether the duplicator works. Assuming yes.

9:30am

- AC, LP finalize the plan
- LP, MN, SY what's the plan with the SD card image?

Things to bring to 32-262 before 10am:

- **LP: find dvi to vga adapter for andrea**
- LP: all duckieboxes from 32-226
- **HZ?: portable monitors**
 - Note: AC will keep the portable monitor Marshall M-CT-710 all day
 - ~~HZ: find batteries for portable monitor Marshall M-CT-710 so that it can be battery operated~~
- HZ?: 2 screens, 2 keyboards
- HZ?: testing laptop
- LP: network (air port)
- LP: and 8-port switch and 6 ethernet cables for testing.
- HZ: megaman SD card (megaman's soul)
- LP: label maker

10am:

- Double check the "what's in the box" checklists

- HZ and students should work together to finishing assembling the robots and test them (See appendix for test plan copied from [Friday lab doc](#))
 - HZ keep track in this doc in the appendix all of the new robots that pass the test
 - **HZ don't forget to update the spreadsheet - also in the new spreadsheet**

10:30am:

- LP - double check the roster to see if everyone is there and follow up with those that are not

1pm:

- LP HZ AC status update
- the room 35-308 is available from 2:30pm until 5pm. We also have 35-316 which is now open.

HZ: know how to print a PDF in Stata.

HZ: print 30 copies of each of these:

Setup Step 1.9 - Github basics.gddoc

Setup Step 2.0 - From SD image to RC control.gddoc

Setup Step 2.05 - RC control, launched remotely.gddoc

Setup Step 2.1 Joystick + camera output in remote laptop.gddoc

1:45pm

AC/HZ: Prepare spreadsheets

Other jobs to do during 10am-2pm:

- **HZ, LP will flash 28 virgin SD cards in stock. + the 6 ones for the students who come in in the morning.**
- HZ: Build robot #22 and test - and then bring to classroom for Andrea
 - replace SD card - the red one contained is either defective or not flashed
- LP: What's the status of the duckietops - where are they and can we get them setup
- LP: go to 32-308 and

- make sure it's open or we have the key
- make sure there's ethernet there
- check the schedule to see if we can get in beforehand and stay later if needed

2pm:

- 5 functioning duckietops in 32-226 (all except ACs)
- Put a sign on the door of the classroom that we are not in to say the new room number.
- every piece of equipment should have yellow tape on it

Hostname customization procedure

This changes the hostname:

- 1) Put SD card in laptop.
- 2) The filesystem is mounted automatically
- 3) Edit /etc/hosts and /etc/hostname and in both replace the string "ubuntu" with the new hostname. Make sure that the space, newlines remain intact.

2-3pm:

Checklist of things to bring to 35-308:

- [] AC: provide summary spreadsheet link to everybody
- [] LP: sd card cloner
- [] ?# access point - Airport Express
- [] HZ: 30 x handouts as above
- [] **LP: dvi-to-vga adapter for andrea**
- [] **box of spare parts - (MN: make a list)**
 - 3 CanaKit
 - Rest of 32 Flash drives
 - Rest of 32 GB SD with v1.1
 - 3 Fisheye cameras
 - 3 Camera cases
 - 3 batteries
 - Rest of 5mm short -- best to exchange them! with long 5mm!
 - Duckies -- because why not?
 - Rest of Motor HATs

Rest of PWM Hats
Rest of GPIO breakouts
3 Joystick controllers
A bunch of M/M wires
Rest of Nylon Standoffs
 Nylon hex nuts
 Nylon screws
 4 3x.5mm screws
 Nylon spacers
Bunch of double sided tape
3 boxes wood signs
printed traffic signs -- to be handed out to boxes!
Rest of zip ties
Copeis of packing list

- [] 5 mice 5 keyboards
- [] 2 8 port Duckietown switches
- [] 1 24 port Duckietown switch
- [] 2 16 switches from TIG
- [] all of our ethernet cables (how many is this?)
- [] 30 long ethernet cables from TIG
- [] 30 more shorter ethernet cables from TIG
- [] 10 long ethernet cables (2 extra long)
- [] 5 power strips
- [] very small flat head screwdrivers
- [] tripod for that camera
- [] all duckieboxes donated by staff to lend out
- [] label maker and rolls
- [] box # 22, with 2 of the new SD Cards.

2:50pm

- CW is there
- **AC is given the robot in box #22 completed and tested (not done instead LP should get one from a student)**
- Andrea sets up his thing with CW
- Network crew (SY and HZ) setup the same network as Friday - except without the Duckietown network (2.4 GHz). Let's have one set of switches outside for the robots and one set inside for the laptops.
- power strip outside the door.
- Hang outside the door with spreadsheet and marks off each duckiebox that arrives.

LP: you choose a robot from the students and you give it to Andrea

SY: bring 2 SD cards to Andrea with 1.1

AC: put link to sheet here

<https://docs.google.com/spreadsheets/d/1n3blmpmqM1MaoxdJ7aqDDxnzHI9ifdgT8SjKmcicqfBA/edit?usp=sharing>

3pm:

- Before entering the class:
 - Open the duckiebox.
 - Take the joystick, the duckiebot, and the charger out of the duckiebox.
 - Plug in the charger into the outlet, and into the small battery port.
 - Leave the duckiebox on the floor, outside the class, with duckiebot on top.
 - Bring the joystick inside.
- Sit down, open your laptop.
- Connect your laptop to the wireless 5GHz network "duckietown-5GhZ, with password "quackquack". if you can't, use wired ethernet otherwise. If you can't, connect to MIT, but you will not be able to follow along.
- You will asked whether you have a Ubuntu 14.04 ready to be used.
 - If so, go through these instructions:
 - If not, you will be loaned one. (might need to pair up with somebody)
- HZ + HA: Meanwhile outside:
 - we extract the SD card
 - **HZ: run the Hostname customization procedure in this doc**
 - we add the SD card back
 - we connect the robot to ethernet and boot it
 - We should be able to ping the robot.
 - We remove the lens cap.

3:20pm

- Students start to go through the lab led by AC.
- and then when they connect to the robot they can see the image which has the password for the wireless
- They should edit the wpa_supplicant file to make it connect to the wireless
- (We should enable the 2.4GHz duckietown? - no - we will create a new name with SSID "duckietown_secret" and password SECRET)
- They should reboot and ask Hang to remove the ethernet cable
- They should then try and drive the robot into the classroom.
- LP: room mood management.

- stretch goal: mentors without a robot / a duckiebox have a loaned robot and can follow along as well

There should be no Duckietown 2.4GHz network. If your laptop can connect to 5GHz that's ok, but otherwise this should be connected through ethernet.

So there should be 50+ ethernet cables to connect all robots and some laptops.

Continuation Feb 18

Location: 32-226

Time: 10am - 2pm

Goal: 100% of students have made their robot move and seen the image.

Stretch Goal: Everyone is able to do that with their own laptop.

Let's keep [this spreadsheet](#) up to date.

Bring to 32-226:

- [] all available duckietops.
- [] the mac airport from 226
- [] an 8 port switch
- [] 10 ethernet cables