Raspberry Pi Installation

ÅLAND SAILING ROBOTS

These instructions are for Arch Linux ARM on a Rapberry Pi 2

SD card creation

Partitions:

1. Find out the device name of your cardreader (ex. /dev/sdd will be used here)
2. Type **fdisk /dev/sdd** and press enter to start fdisk.
3. Type **o** and press enter to clear out any old partitions.
4. Type **p** and press enter to see partitions, there should be none left.
5. Type **n** and press enter to start creating a new partition.
   - Type **p** and press enter to select primary.
   - Type **1** and press enter to select first partition.
   - Press enter to accept default first sector.
   - Type **+100M** and press enter to select last sector.
6. Type **t** and press enter to change type
   - Type **c** and press enter to change type to FAT32.
7. Type **n** and press enter to start creating a new partition.
   - Type **p** and press enter to select primary.
   - Type **2** and press enter to select second partition.
   - Press enter to accept default first sector.
   - Press enter to accept default last sector.
8. Type **w** and press enter to save partition table and exit fdisk.

Filesystems:

9. Type **mkfs.vfat /dev/sdd1** and press enter to create a filesystem on the first partition.
10. Type **mkdir boot** and press enter to create a directory to use for boot partition.
11. Type **mount /dev/sdd1 boot** and press enter to mount boot partition in boot directory.
12. Type **mkfs.ext4 /dev/sdd2** and press enter to create a filesystem on the second partition.
13. Type **mkdir root** and press enter to create a directory to use for root partition.
14. Type **mount /dev/sdd2 root** and press enter to mount root partition in root directory.

Base system:

15. Type **wget http://archlinuxarm.org/os/ArchLinuxARM-rpi-2-latest.tar.gz** and press enter to download latest build.

16. Type **bsdtar -xpf ArchLinuxARM-rpi-2-latest.tar.gz -C root** and press enter to extract files.

17. Type **sync** and press enter to write any data buffered in memory out to disk.

18. Type **mv root/boot/* boot** and press enter to move boot files to boot partition.

Initial configuration:

19. Edit the file *boot/cmdline.txt.*

 - Remove entries with ttyAMA0 (ex. console=ttyAMA0,115200).

20. Edit the file *boot/config.txt.*

 - Uncomment the line device_tree_param=i2c_arm=on.

 - Uncomment the line `device_tree_param=i2s=on`.

21. Edit the file *root/etc/modules-load.d/raspberrypi.conf*.

 - Add line i2c-bcm2708.

 - Add line i2c-dev.

22. Edit the file *root/etc/hostname*.

 - Change text to sailbot.

23. Type **umount boot root** and press enter to unmount boot and root filesystems.

24. Remove card from reader, put it in the Raspberry and power on.

25. Log in with username: root and password: root

Dependency installation:

26. Type **pacman -Syu** and press enter to synchronize database then look for and install updates.

- If you get timeouts, edit the file */etc/resolv.conf* and add options timeout:1 to it.

27. Type **pacman -S gcc make git sudo wget** and press enter to install tools needed to construct software.

28. Type **pacman -S i2c-tools** and press enter to install i2c toolkit.

29. Type **pacman -S gpsd** and press enter to install GPS daemon and library.

30. Goto *http://sqlite.org/download.html* and copy the link to the latest sqlite-autoconf archive (ex. sqlite-autoconf-3080900.tar.gz).

31. Type **wget "filename"** (ex. wget http://sqlite.org/2015/sqlite-autoconf-3080900.tar.gz) and press enter to download archive.

- Type **tar xvf "filename"** (ex. tar xvf sqlite-autoconf-3080900.tar.gz) to unpack archive.

- Enter the folder it got unpacked to.

- Type **./configure** and press enter to run configuration script.

- Type **make** and press enter to create sqlite software.

- Type **make install** and press enter to install sqlite software.

- Type **cd ..** to exit the directory

- Type **rm -r sqlite*** and press enter to remove old files.

32. Type **git clone git://git.drogon.net/wiringPi** and press enter to get wiringPi repository.

- Type **cd wiringPi** and press enter to enter folder.

- Type **./build** and press enter to create software.

- Exit directory with **cd ..**

Main software installation:

33. Type **git clone https://github.com/pophaax/raspi** and press enter to download repositories.

34. Enter the raspi/PiShell directory and type **./pishell.sh** to start PiShell then select install.

35. If installation is successful you can now use the command pishell to get a menu for updating, testing, building etc.