IOT Lab

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Who am I

- UML Computer Science 2018
- Redhat Associate Software Engineer
- Took this class
- Built personal IOT devices

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- Phone: 978-995-5343

- Available to meet with you for help if needed I live near campus just ask

What are we doing

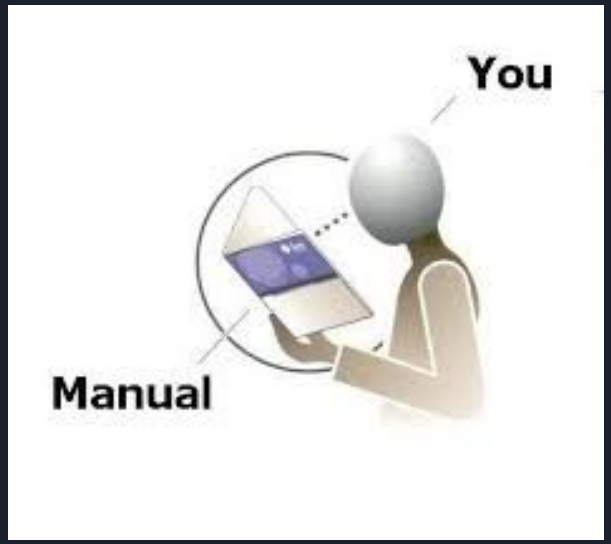
- 6 labs to teach basics of the devices and software we will be using for the project
- Devices: Raspberry pi, ESP8266, various sensors

- Software: mqtt, flask, python, C
- Use what you learn in the six labs to make your own IOT device

Assignment 1

Install fedora on pi

Fedora for Raspberry Pi



https://fedoraproject.org/wiki/Architectures/ARM/Raspberry_Pi

(google “fedora raspberry pi” first link)

Download Fedora and prepare the sd card

Recommended Fedora image: [Fedora 29 Spins LXDE]

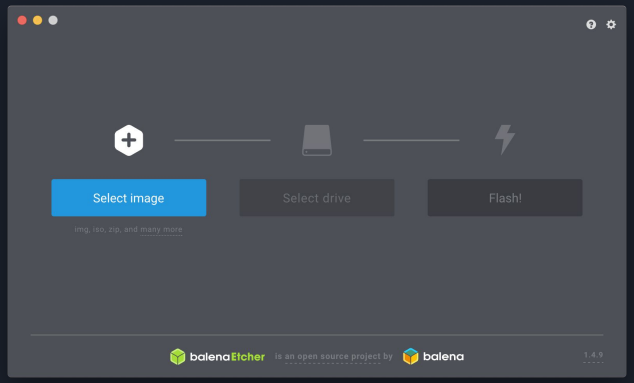
Download image to your laptop, insert sd card and, run this command to flash image to sd card

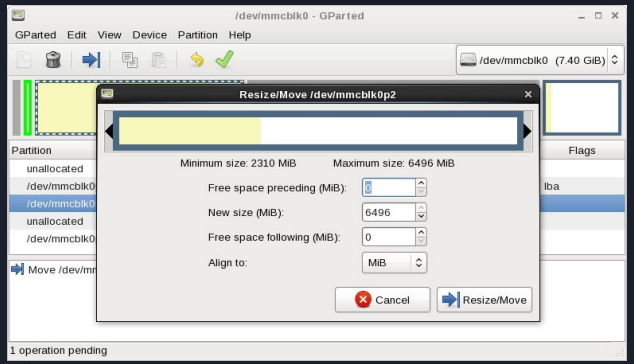
Preparing the SD card:

https://www.balena.io/etcher/ (etcher tool to flash sd card)

`xzcat Fedora-IMAGE-NAME.raw.xz | sudo dd status=progress bs=4M of=/dev/XXX` (manual command to flash sd card)

Resize the root partition: `gparted /dev/XXX`





Setup and boot Pi

Plug in sd card, keyboard, mouse, hdmi, and power cables

Follow on screen prompts to set up fedora

Connect to wifi and Update

Connect to wifi

Run command “sudo dnf update -y” in terminal

This will take a long time

```
[vivek@fedora28-nixcraft ~]$ sudo dnf update
Fedora 28 - x86_64 - Updates                    1.6 MB/s | 9.7 MB     00:06
Fedora 28 - x86_64                              634 kB/s |  60 MB     01:37
Last metadata expiration check: 0:00:03 ago on Wednesday 23 May 2018 12:33:43 AM IST.
Dependencies resolved.
================================================================================
 Package                 Arch       Version                     Repository   Size
================================================================================
Upgrading:
 coreutils               x86_64     8.29-6.fc28                 updates     1.2 M
 coreutils-common        x86_64     8.29-6.fc28                 updates     2.0 M
 crypto-policies         noarch     20180425-5.git6ad4018.fc28  updates      40 k
 curl                    x86_64     7.59.0-3.fc28               updates     340 k
 cyrus-sasl-lib          x86_64     2.1.27-0.2rc7.fc28          updates     114 k
 dbus                    x86_64     1:1.12.8-1.fc28             updates     254 k
 dbus-libs               x86_64     1:1.12.8-1.fc28             updates     173 k
 dhcp-client             x86_64     12:4.3.6-20.fc28            updates     306 k
 dhcp-common             noarch     12:4.3.6-20.fc28            updates     204 k
 dhcp-libs               x86_64     12:4.3.6-20.fc28            updates     141 k
 fedora-gpg-keys         noarch     28-2                        updates      96 k
 fedora-repos            noarch     28-2                        updates     8.8 k
 file                    x86_64     5.33-2.fc28                 updates      74 k
 file-libs               x86_64     5.33-2.fc28                 updates     540 k
 findutils               x86_64     1:4.6.0-19.fc28             updates     526 k
 glib2                   x86_64     2.56.1-2.fc28               updates     2.4 M
 glibc                   x86_64     2.27-14.fc28                updates     3.4 M
 glibc-common            x86_64     2.27-14.fc28                updates     751 k
 glibc-langpack-en       x86_64     2.27-14.fc28                updates     804 k
 iptables-libs           x86_64     1.6.2-3.fc28                updates      87 k
 json-c                  x86_64     0.13.1-2.fc28               updates      37 k
 krb5-libs               x86_64     1.16.1-2.fc28               updates     801 k
 libcurl                 x86_64     7.59.0-3.fc28               updates     277 k
 libgcc                  x86_64     8.1.1-1.fc28                updates      89 k
 libgomp                 x86_64     8.1.1-1.fc28                updates     198 k
 libldb                  x86_64     1.3.3-1.fc28                updates     143 k
 libmodulemd             x86_64     1.4.1-1.fc28                updates     104 k
 libnfsidmap             x86_64     1:2.3.1-9.rc1.fc28          updates     107 k
 libnghttp2              x86_64     1.32.0-1.fc28               updates      70 k
 libpsl                  x86_64     0.20.2-1.fc28               updates      58 k
 libreport-filesystem    x86_64     2.9.5-1.fc28                updates      18 k
 libsss_autofs           x86_64     1.16.1-4.fc28               updates      87 k
 libsss_certmap          x86_64     1.16.1-4.fc28               updates     115 k
 libsss_idmap            x86_64     1.16.1-4.fc28               updates      90 k
 libsss_nss_idmap        x86_64     1.16.1-4.fc28               updates      96 k
 libsss_sudo             x86_64     1.16.1-4.fc28               updates      86 k
 libstdc++               x86_64     8.1.1-1.fc28                updates     [illegible]
 libtirpc                x86_64     1.0.3-1.rc1.fc28            updates     [illegible]
 libxcrypt               x86_64     4.0.1-1.fc28                updates      75 k
```

Make a video

Do something, I don't care what, just show me that fedora is running on your pi.

Email it to me before next class

dpivonka@redhat.com

dan@localhost:~

File Edit View Search Terminal Help

```
[dan@localhost ~]$ screenfetch
/usr/bin/screenfetch: line 1341: [: =: unary operator expected
           /:-------------:\          dan@localhost.localdomain
        :-------------------::        OS: Fedora
      :-----------/shhOHbmp---:\      Kernel: armv7l Linux 4.18.16-300.fc29.armv7hl
    /-----------omMMMNNNMMD  ---:     Uptime: 2h 35m
   :-----------sMMMMNMNMP.    ---:    Packages: 1202
  :-----------:MMMdP-------     ---\   Shell: bash 4.4.23
 ,------------:MMMd--------     ---:   CPU: ARMv7 rev 4 (v7l) @ 4x 1.2GHz
 :------------:MMMd-------     .---:   GPU:
 :----    oNMMMMMMMMMNho     .-----:   RAM: 307MiB / 972MiB
 :--     .+shhhMMMmhhy++   .------/
 :-    -------:MMMd--------------:
 :-   --------/MMMd-------------;
 :-    ------/hMMMy------------:
 :-- :dMNdhhdNMMNo------------;
 :---:sdNMMMMNds:------------:
 :------:://:-------------::
 :---------------------://

[dan@localhost ~]$
```