3.4 Install Jetbot Mini

Note: if the jetbotmini factory image is burned, this part of the configuration can be skipped because the required software has been configured in the jetbotmini factory image.

3.4.1 Enable peripheral permissions we will use

nput this command to get permission to use gpio:

```
sudo usermod -a -G gpio jetson
```

jetson is the current username

Input this command to get permission to use i2c:

```
sudo usermod -a -G i2c jetson
```

jetson is the current username

3.4.2 Install TensorFlow

Preparation:

1. Install the system package according to the requirements of TensorFlow:

```
sudo apt-get install libhdf5-serial-dev hdf5-tools libhdf5-dev zlib1g-dev zip
libjpeg8-dev
```

2. Install and update PIP3.

```
sudo apt-get install python3-pip
sudo pip3 install -U pip
```

3. Input this command to install Python package:

```
sudo pip3 install -U grpcio absl-py py-cpuinfo psutil portpicker six mock
requests gast astor termcolor keras-preprocessing wrapt google-pasta setuptools
testresources protobuf h5py keras-applications
```

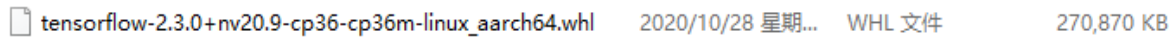
Installation:

Because the firewall between the domestic network and the external network is isolated, the access speed of the external network is relatively slow. Therefore, the first local installation method can be used to complete the installation more stably and quickly.

Method 1 of installation: local installation

Transfer the TensorFlow installation package to the Jetbot Mini file system via WinSCP or other file transfer tool.

Path of package : [JetBot-Mini-Robot-Car] --> [Annex] --> [Library and model]---> [TensorFlow Installation Package]



In the linux command console to the directory where the file is stored, use the following command to install

```
sudo pip3 install tensorflow-2.3.0+nv20.9-cp36-cp36m-linux_aarch64.whl
```

After installation, TensorFlow is installed.

Method 2 of installation: online installation

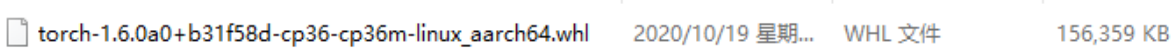
Input this command to install TensorFlow package:

```
sudo pip3 install --extra-index-url
https://developer.download.nvidia.com/compute/redist/jp/v42 tensorflow-gpu ==
2.3.0 + nv20.9
```

3.4.3 2. Install Pytorch

Because TensorFlow have been installed , some dependencies and libraries are installed, so we are now installing Pytorch directly.

Transfer Pytorch installation package to the Jetbot file system via WinSCP or other file transfer tool.



In the linux command console to the directory where the file is stored, use the following command to install:

```
sudo pip3 install torch-1.6.0a0+b31f58d-cp36-cp36m-linux_aarch64.whl
```

Use the following command to install torchvision:

```
sudo pip3 install torchvision
```

3.4.4 Install Jupyter Lab

Use the following command to install the Jupyter Lab in order:

1) Installation dependencies:

```
    sudo apt install nodejs npm
```

2) Install jupyterlab:

```
    sudo pip3 install jupyter jupyterlab
    sudo jupyter labextension install @jupyter-widgets/jupyterlab-manager
    sudo jupyter labextension install @jupyterlab/statusbar
```

Generate the appropriate configuration file:

```
jupyter lab --generate-config
```

Set the password to enter the notebook (this will be set twice, the second time to confirm the entered password):

```
jupyter notebook password
```

When you log in to your notebook for the first time, you need to enter the password you set here to enter.

!Note: please be sure to remember the currently set password!

3.4.5 Install Jetbotmini firmware

Transfer the jetbot mini package to the Jetbot mini file system /home directory via WinSCP or other file transfer tool.

Path of package : [JetBot-Mini-Robot-Car] --> [Annex] --> [JetBot-Mini Software package]---> [JetBot-Mini-master]

Then go to the /home/jetson file directory in the command console.

```
cd /home/jetson/jetbotmini-master
```

Then use the following command to install the jetbot mini firmware.

```
sudo python3 setup.py install
```

3.4.6 2. Install Jetbot Mini boot self-start service

In the command console, go to 3.4 Chapter 5 jetbotmini firmware package transmitted in /home/jetbotmini master file directory and Utils Directory:

```
cd jetbotmini/utils
```

1. Run the create_stats_service.py file to generate the stats_service.service file:

```
python3 create_stats_service.py
```

Then move the generated service file to the system service:

```
sudo mv jetbotmini_stats.service /etc/systemd/system/jetbotmini_stats.service
```

Enable the service:

```
sudo systemctl enable jetbotmini_stats
```

Manually open the service

```
sudo systemctl start jetbotmini_stats
```

2. Run the create_jupyter_service.py file to generate the nano_jupyter.service file:

```
python3 create_jupyter_service.py
```

Then move the generated service file to the system service:

```
sudo mv nano_jupyter.service /etc/systemd/system/nano_jupyter.service
```

Enable the service:

```
sudo systemctl enable nano_jupyter
```

Manually open the service

```
sudo systemctl start nano_jupyter
```

3. Run the create_jetbotmini_service.py file to generate the jetbotmini_start.service file:

```
python3 create_jetbotmini_service.py
```

Then move the generated service file to the system service:

```
sudo mv jetbotmini_start.service /etc/systemd/system/jetbotmini_start.service
```

Enable the service:

```
sudo systemctl enable jetbotmini_start
```

Manually open the service

```
sudo systemctl start jetbotmini_start
```

3.4.7 2. Move the Notebook source package to the Jetbot Mini home directory

Transfer the jetbotmini course source code to the jetbotmini file system /home/Jetson directory through "WinSCP" or other file transfer tools.

Path of package : [JetBot-Mini-Robot-Car] --> [13.Code] --> [Notebooks]