3.1 Configure Tellstick duo

As Tellstick duo comes from Telldus tech, we first need to make telldus sources available before installing the required packages. First, we will create a dedicated directory for this task.

Create a directory
mkdir iot_lab_TellstickDuo
cd iot_lab_ TellstickDuo (to change directory to the newly created directory)

Avail the sources for Tellstick duo (Telldus) to the distribution
sudo nano /etc/apt/sources.list.d/telldus.list

this will bring up an editable file and add the following line

deb-src http://download.telldus.com/debian/ stable main

Now we need to write this to the file, save the file and exit
control + O (write)
press Enter (Save)
control + X (exit)
execute the following commands to make key available and update package information #
wget http://download.telldus.com/debian/telldus-public.key
sudo apt-key add telldus-public.key
rm telldus-public.key
sudo apt-get update

if you encounter the following error during updating apt:

"This must be accepted explicitly before updates for this repository can be applied. See apt-secure(8) manpage for details"

then execute the following command:
sudo apt-get update --allow-releaseinfo-change

Next: install needed packages, compile from source, and install
sudo apt-get install build-essential # already installed
sudo apt-get build-dep telldus-core
This fetches the following packages
debhelper gettext html2text intltool-debian libgettextpo0 libunisting0 po-debconf
install other needed packages
sudo apt-get install cmake libconfuse-dev libftdi-dev help2man
Download sources and compile
sudo apt-get --compile source telldus-core
Install the three packages: libtelldus-core2 telldus-core libtelldus-core-dev
*sudo dpkg --install *.deb*

Clean up
cd ..;rm -Rf telldus-core

3.2 Access the *things*

Now that we have configured the tellstick duo, we can now access the things; read temperature values; and turn on and off switches.

first we will check which devices are connected to the Raspberry Pi
Execute the following command
lsusb
We will see one of the printed lines have something similar to the following
Bus 001 Device 004: ID 1781:0c31 Multiple Vendors Telldus TellStick Duo
help command
tdtool –help

3.2.1 Reading temperature values

the following command will list the sensors and actuators the Tellstick connected to.

tdtool -l

We will be able to see the temperature values. However, we don't see any actuators (switch) connected to it as yet. We will need to configure them manually. To do so, we need to configure the "tellstick conf" file.

3.2.2 Configuring actuators

The following command will take us to edit the conf file.
sudo nano /etc/tellstick.conf
Now to add devices we need to write to the conf file. The following will add a device.

```
device {
id = 1
name = "Lighting"
protocol = "arctech"
model = "selflearning-switch: proove"
parameters {
house = "950"
unit = "1"
}
}
```

Save the above newly added lines to conf file[1]
Every time we make any changes to the conf file, we need to restart the tellstick duo.
sudo /etc/init.d/telldusd restart # to restart
The above will add a device and now when we execute "tdtool -l", this will enable us to see the added device to the list.
Now we can turn on the device by:
`tdtool --on (device id)`

The above will add a device, and now when we execute "tdtool -l", we can see the added device to the list.

Now we can turn on the device by:

```
tdtool --on (device id)
```

Now, if we execute “tdtool -l”, this will show us that the device is turned on. However, the actual device is still not turned on. **Can you guess- why? Think about it for a few minutes before you move on.**

The reason: As we are using Proove manufactured switch, which is a so-called self-learned switch, we need to ask it to learn itself.

To make the switch learn: execute the following command

```
tdtool --learn (device id)
```

However, this still does not let the switch learn. To solve this, press and hold the button on the device you want it to self-learn for (3 seconds approx.). We can execute the learning command again when we see that the device LED is blinking on and off.
Now the switch can be turned on and off. Turn on and off for few times.

Now you should add another switch/actuator and enable remote control.