Lab Submission

ESE 3005: EMBEDDED SYSTEMS ARCHITECTURE II

Lambton College in Toronto

Instructor: Takis Zourntos

STUDENT NAME & ID:

Vishal Hasrajani(C0761544)

Parth Patel(C0764929)

Goutham Reddy Alugubelly(C0747981)

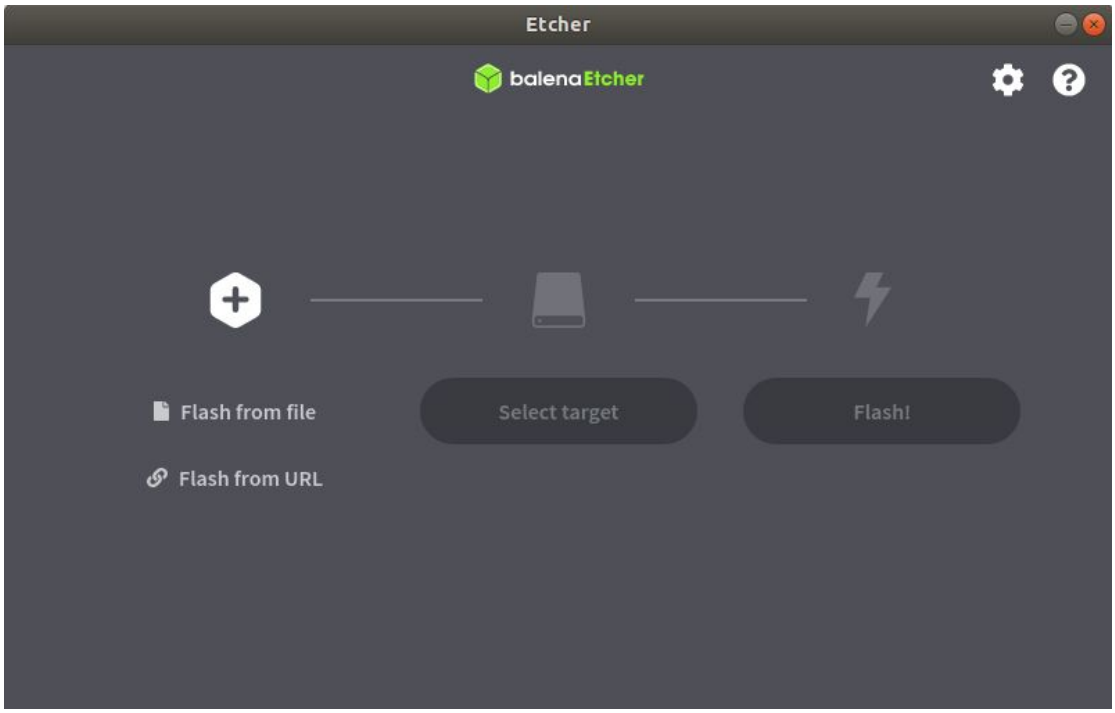
Ratnajahnavi rebbapragada(C0762196)

INTRODUCTION:

This lab is focussed on running the Graphical interface on the embedded platform like beaglebone black.Moving further,we installed Qt (qt5-default and qtcreator) on the Beaglebone and implemented the Qt temperature sensor GUI application on it.

DESCRIPTION :

To start up with,we flashed the SD-card(32gb) with the version of beaglebone featuring a GUI from beaglebone.org (i.e Debian 9.9 2019-08-03 4GB SD LXQT) using balena etcher software on the ubuntu.



Then we inserted the SD-card having the GUI image of debian to the beaglebone black.Secondly we connected the Display using the HDMI cable.Then after pressing the boot button,we added the power supply to the beaglebone black.After doing so,it booted up from the SD-card and little penguin symbol came up showing that image is working properly .

Video link below :

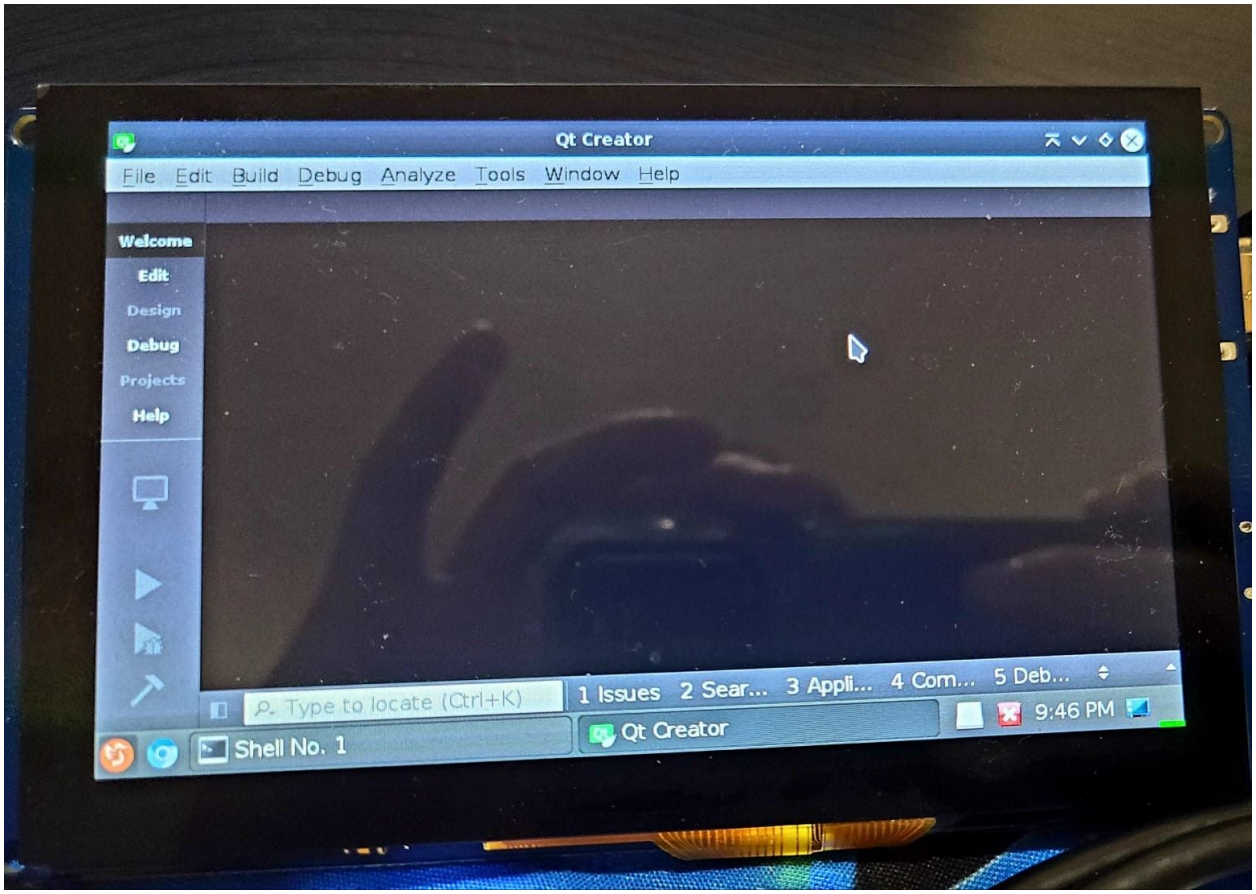
https://www.youtube.com/watch?v=jVx81byLP44

The steps to install the qt-5-default and qtcreator on beaglebone are as follows:

1) **sudo apt-get install build-essential**

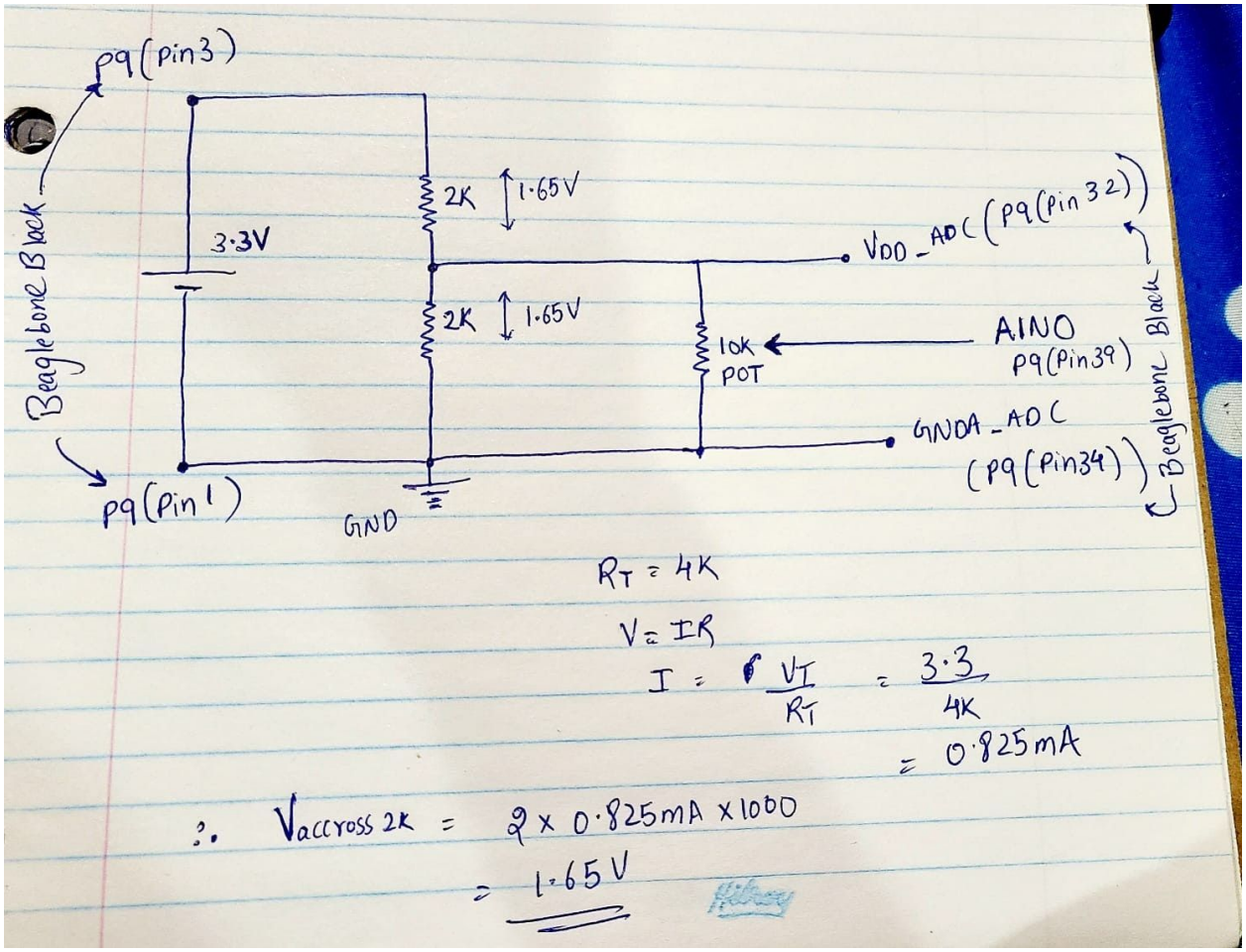
2) **sudo apt-get install qtcreator**

3) **sudo apt-get install qt5-default**



Now to implement the Qt Temperature Sensor GUI Application on our Beaglebone, we used a voltage divider circuit which provides the output voltage of 1.65v max(instead of temperature sensor).

The circuit is shown as below :



For the Coding reference, we followed Derek Molloy github
Link:
https://github.com/derekmolloy/exploringBB/tree/version2/chp13/QtTemperature

OUTPUT :
Youtube Link ----)
https://www.youtube.com/watch?v=zReu6itkvUA

CONCLUSION :

To sum up,we can say that we learned how to interface HDMI display onto the beaglebone and we also implemented the QT temperature sensor GUI application on the beaglebone black using voltage divider circuit instead of using Temperature sensor(as the output of the sensor will be in small voltage which can be achieved and varied by voltage divider circuit and potentiometer respectively).