

CPE403 – Advanced Embedded Systems

Design Assignment #06

DO NOT REMOVE THIS PAGE DURING SUBMISSION:

Name: Cameron Kirk

Email: kirkc1@unlv.nevada.edu

Github Repository link (root): <https://github.com/kirkster96/DqF514-not-embedded>

Youtube Playlist link (root):

<https://www.youtube.com/playlist?list=PLiqmqQ7XKuf7ArV7lO6b20D1ES5SUp0Yk>

Follow the submission guideline to be awarded points for this Assignment.

Submit the following:

- Demo (Video link text file), Document, and Code.
- Documentation: Submit the midterm report with 1) Goal, 2) Detailed Implementation, 3) Schematics, 4) Video links, 5) Screenshots, and 6) Conclusions (tasks completed).

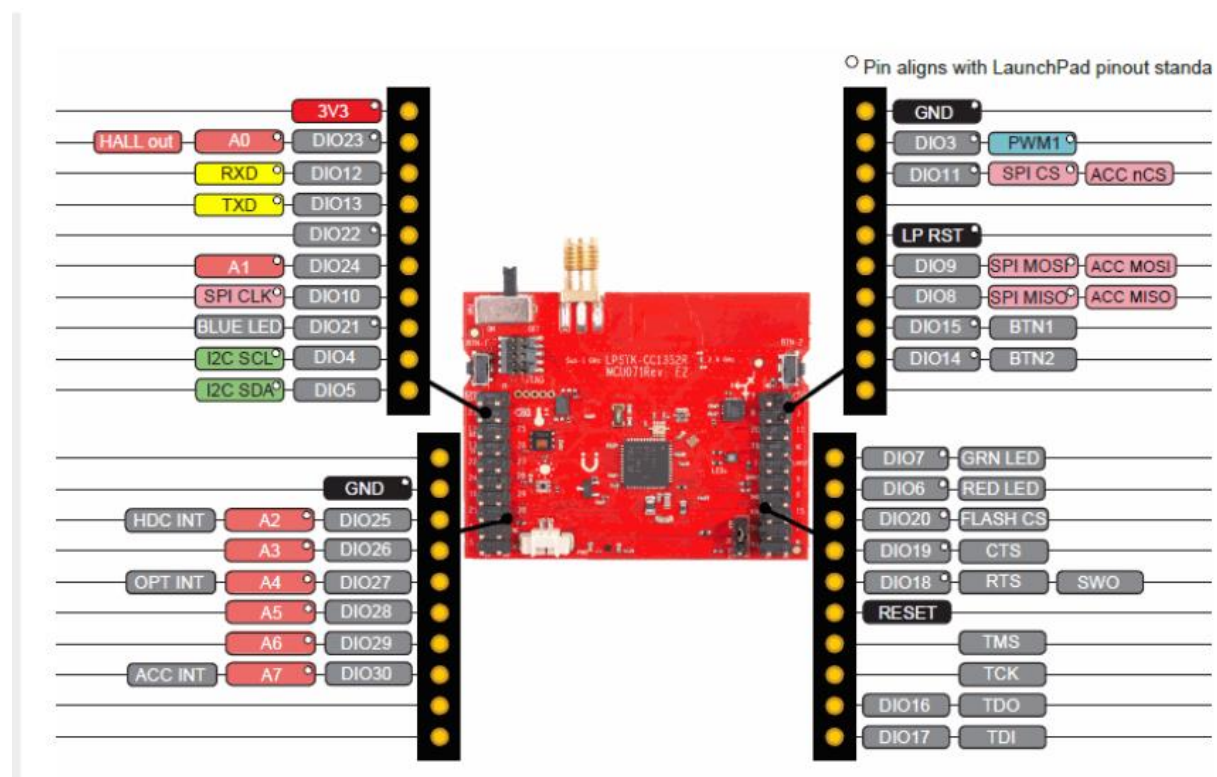
1. Goal

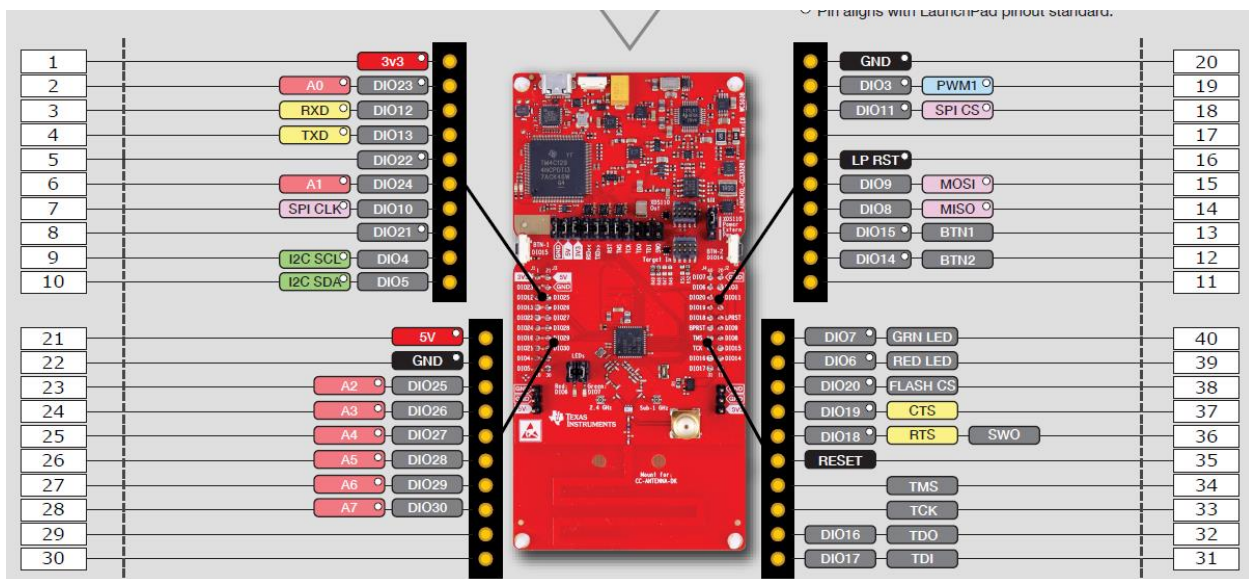
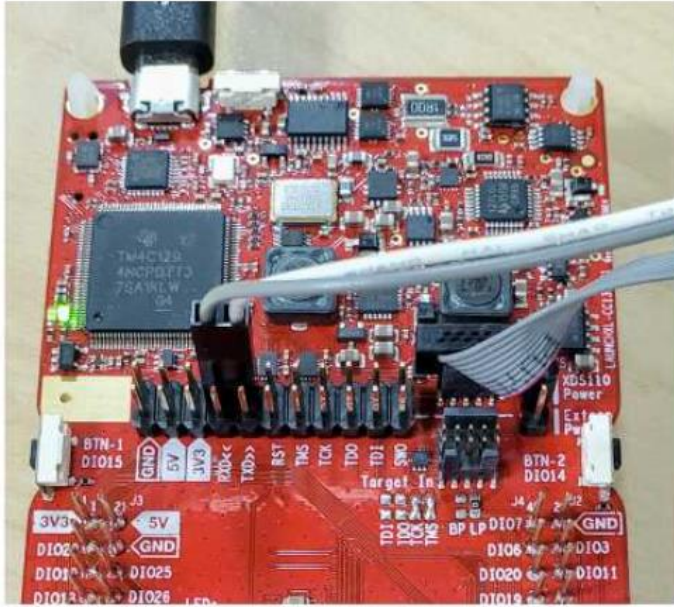
The goal of this assignment was to use the Beagle Bone Enhanced to connect the LAUNCHPAD-XL as a coprocessor and connect a sensor to the network. The Linux gateway will then host a node.js web application that can display the sensor data in the network to the user.

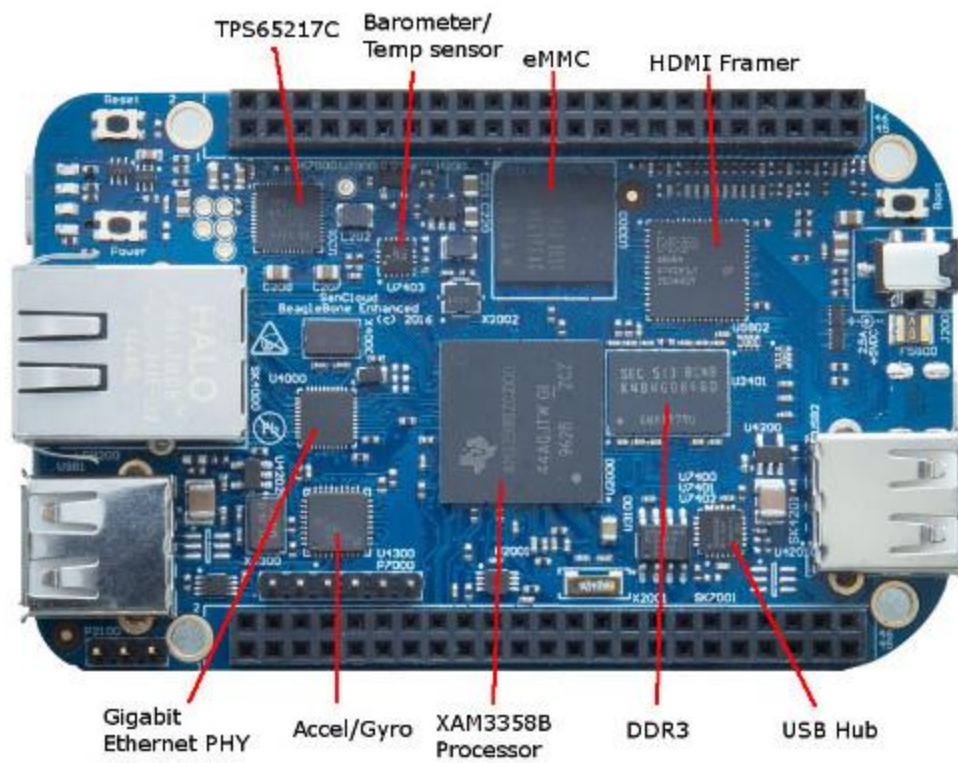
2. Detailed Implementation

My implementation was achieved by the coprocessor project provided by the resource explorer to take the role of the collector. The sensor tag used the same code as the previous assignment 05 and is able to connect to the network and transmit data from the LPSTK sensors. The Beagle Bone Enhanced was programed using the TI evm image that was recommended by the Linux Gateway

3. Schematics







4. Screenshots

TIMAC CollectorApp

Not secure | 192.168.0.52:1310


AppsCode CentralUNLVCS 370Other bookmarks

TI-15.4 Stack-2.0.0 Collector App




Network close for New Devicesopen

Window Snip

Network



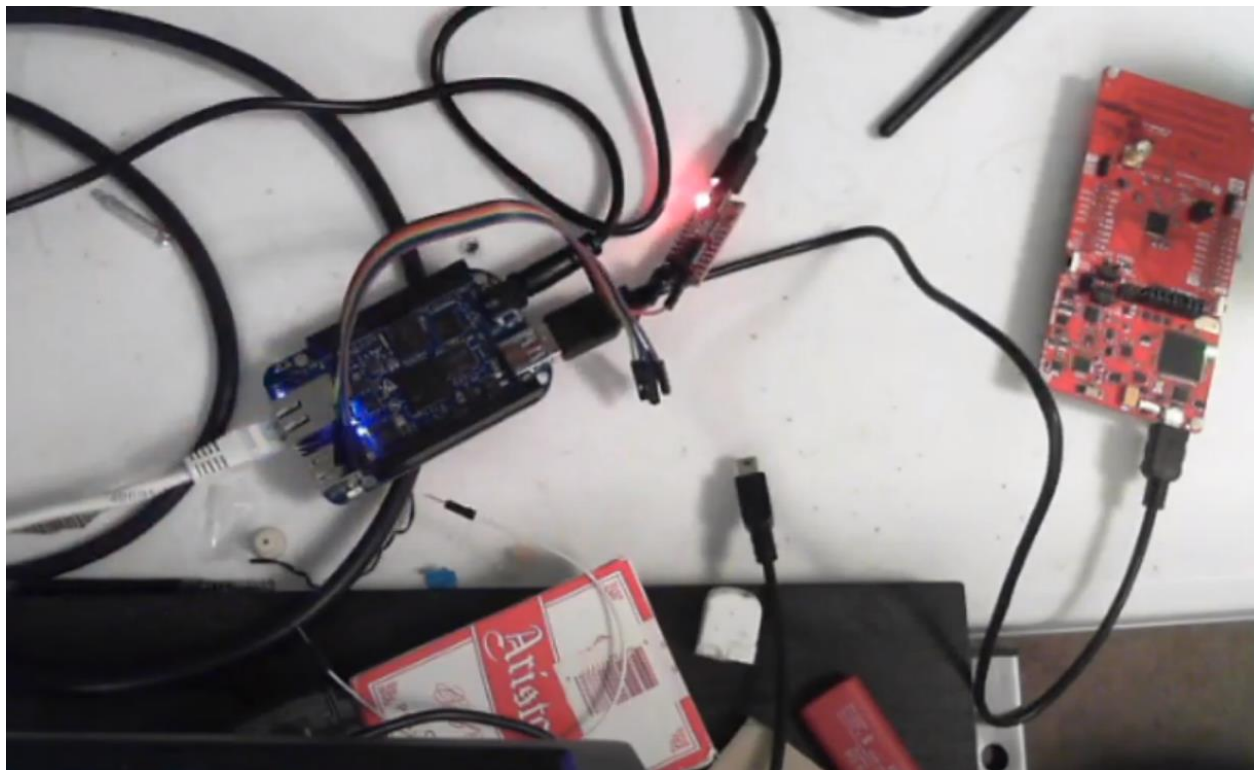
Sensor Nodes

Short Address	Ext Address	Sensors Data	RSSI	Toggle-Req
0x3	0x44258A9D9698A	 36% RH	-23	ToggleLed
		 23°C		
		 1lux		

© 2016-17 Texas Instruments Incorporated.


```
COM8 - PuTTY
root@SensorToCloud:~/prebuilt#

Sensor 0x0003: Temp 23, RSSI -23
already exists
CMD ID: 5
Frame Control: 310003
already exists
CMD ID: 2
```



5. Video Links

<https://youtu.be/Av-i3C2hCrI>

6. Conclusion

In conclusion, the TI 15.4 Stack continues to prove to be very versatile in its capabilities. It is capable of also handling coprocessor capabilities with minimal modification to the code in the rest of the sensor network topology. Having this sort of robust connectivity allows for the networking of many different systems together and allows for rapid development and prototyping.

I understand the Student Academic Misconduct Policy -
<http://studentconduct.unlv.edu/misconduct/policy.html>

“This assignment submission is my own, original work”.

Cameron Kirk