1

EE 299 PROJECT

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2 OUTLINE

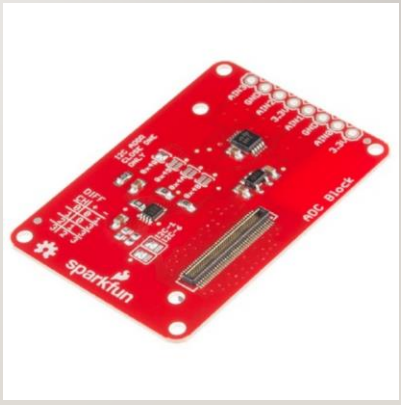
- Goals
- Tutorial 1: SparkFun® ADC Block Programming Guide
- Tutorial 2: IR Receiver Shield Kit
- Tutorial 3: IR Communication Fundamentals
- Conclusion
- Q & A

3 GOALS

- The goal of this EE 299 project was to create tutorials for Intel Edison that was targeted for an undergraduate audience (EE 180DA)

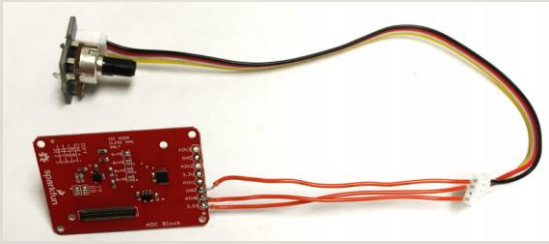
4 TUTORIAL 1: SPARKFUN® ADC BLOCK PROGRAMMING GUIDE (1)

- Expansion board allows analog inputs to be processed by the Intel Edison
- Existing libraries created by the manufacturer are written for C++, but not for C



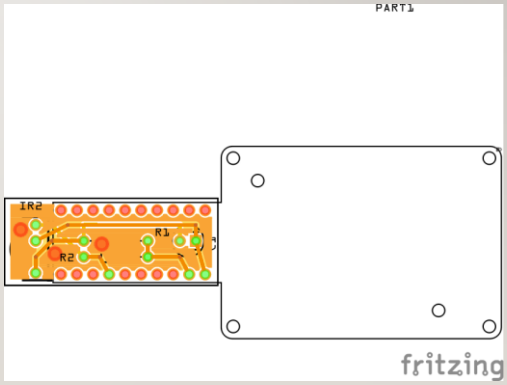
5 TUTORIAL 1: SPARKFUN® ADC BLOCK PROGRAMMING GUIDE (2)

- Rewrote C++ libraries in C
- Rewrote tutorial to use C instead of C++
- Replaced example used in tutorial to be more straightforward



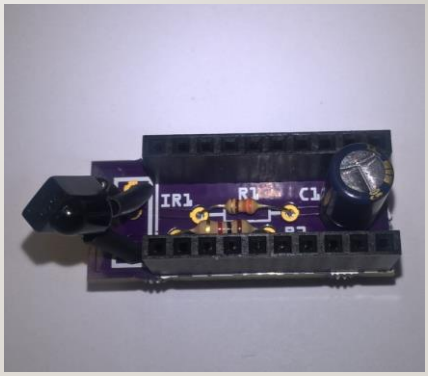
6 INTEL EDISON® TUTORIAL 2: IR RECEIVER SHIELD KIT (1)

- The IR Receiver Shield Kit is a kit of parts that allows a student to quickly get started prototyping with IR communication
- I designed the PCB and selected components for the kit so that the tutorial requires no prior experience with any of the components.
  - Prior soldering experience is also not assumed



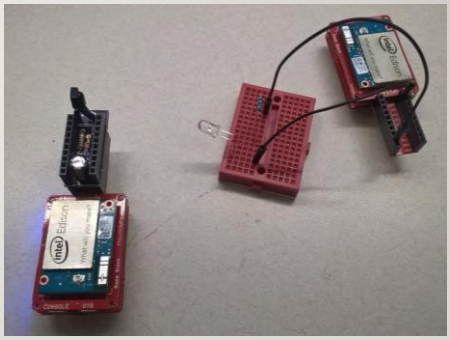
7 INTEL EDISON® TUTORIAL 2: IR RECEIVER SHIELD KIT (2)

- Both assembly of the PCB and testing proper behavior are covered in this tutorial
- An additional, optional lab investigation in the Appendix elaborates on differences between the circuits used by the IR Receiver when connected to the SparkFun GPIO Block vs the Arduino Breakout Board



8 TUTORIAL 3: INTEL EDISON® IR COMMUNICATION FUNDAMENTALS (1)

- The last tutorial explains how IR communication works using a simple custom IR protocol



9 CONCLUSION

- Three tutorials for Intel Edison were developed
- The first tutorial, SparkFun® ADC Block Programming Guide, was already used in EE 180DA class this quarter
- The second two tutorials are finished together with the kit of parts that the students will need to use them in EE 180DB next quarter

10

Q & A