EADAS

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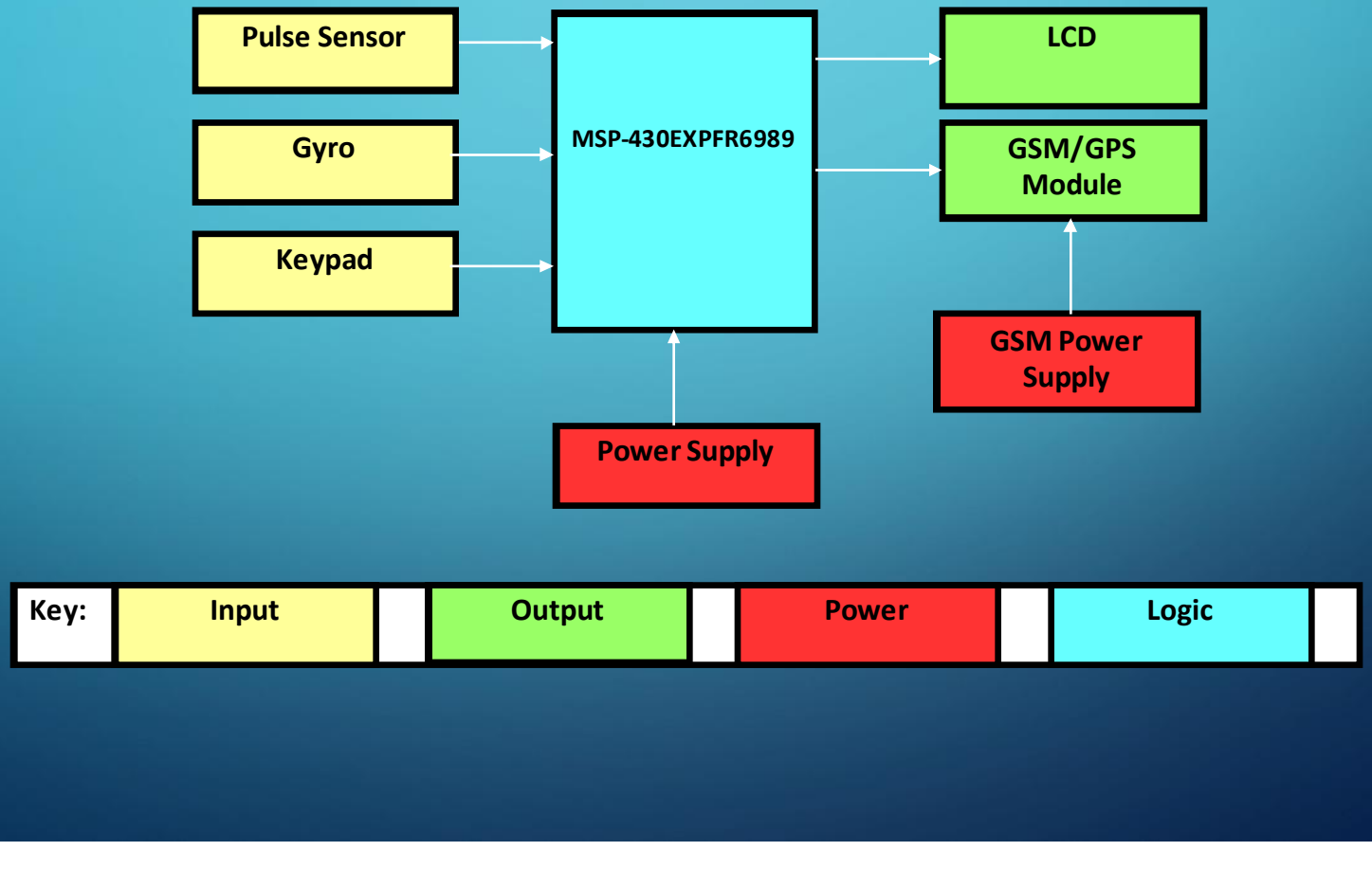
PROBLEM STATEMENT

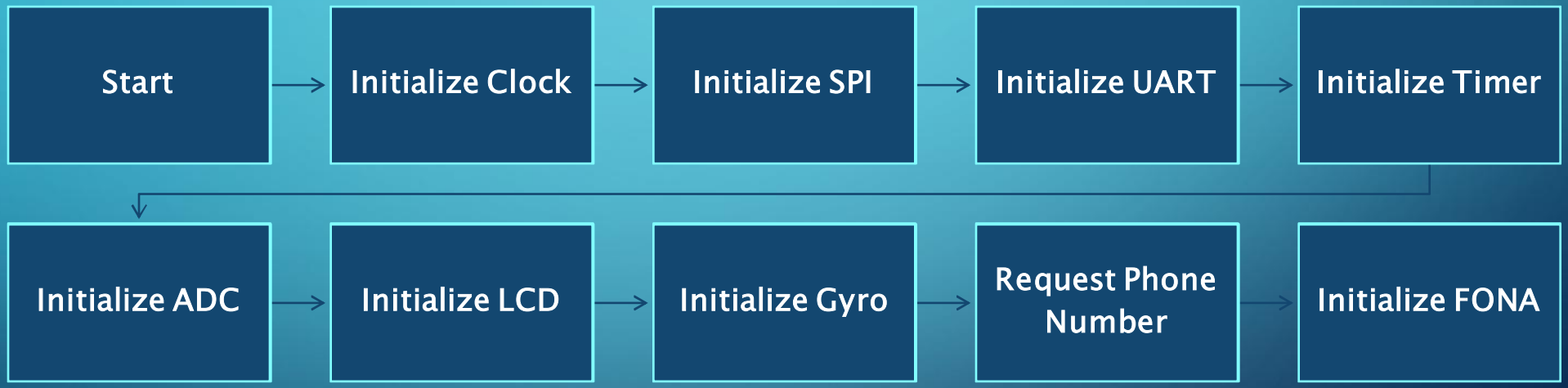
- In person monitoring of the elderly is not always convenient.
- Solution : EADAS – Elderly Asset Distress Alarm System
  - Monitors
    - Orientation & acceleration to detect fall
    - Heart rate to detect spike or fall
    - Location, in case the elderly doesn't respond
  - Alert
    - Sends status/location and time as sms to a set mobile number

HARDWARE BLOCK DIAGRAM



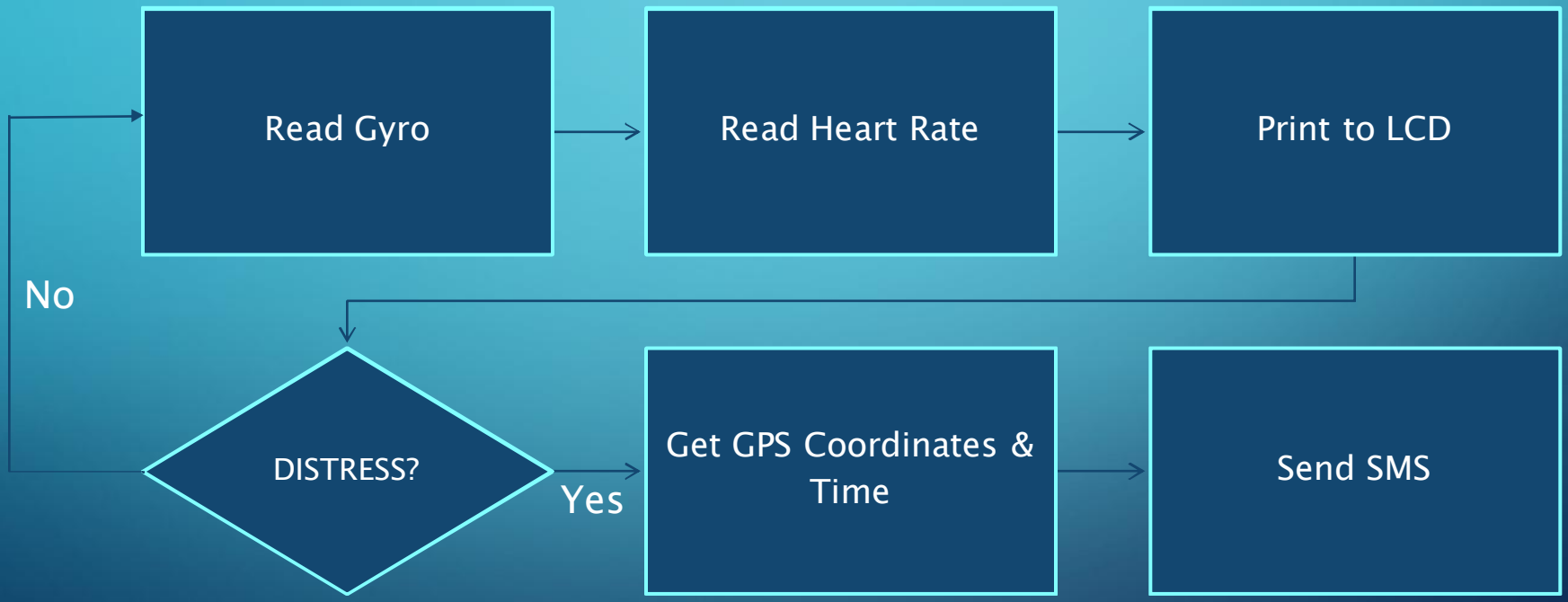
SOFTWARE FLOW DIAGRAM

INITIALIZATION SEQUENCE

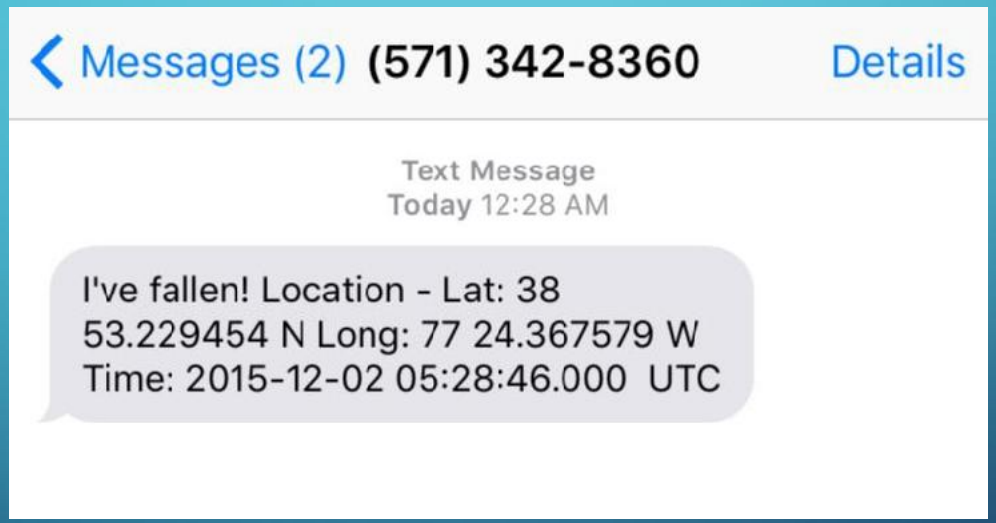


SOFTWARE FLOW DIAGRAM

APPLICATION



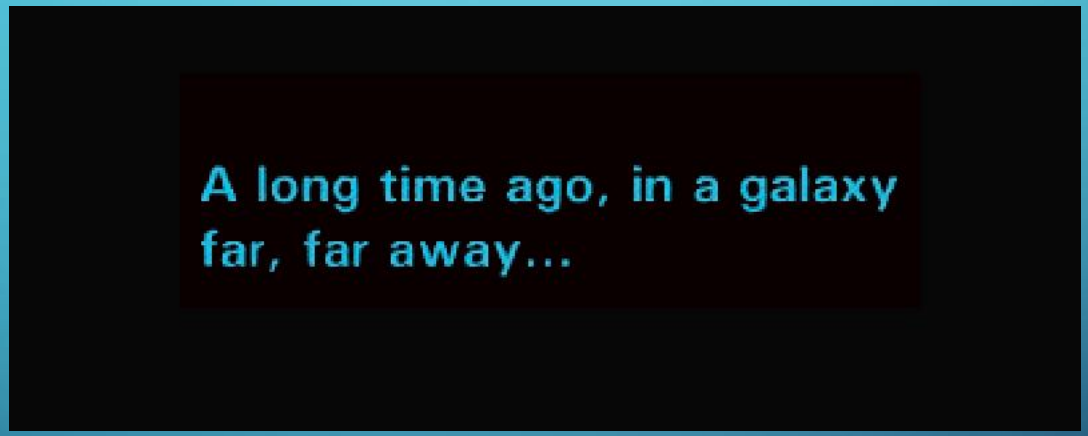
SMS ALERT EXAMPLE



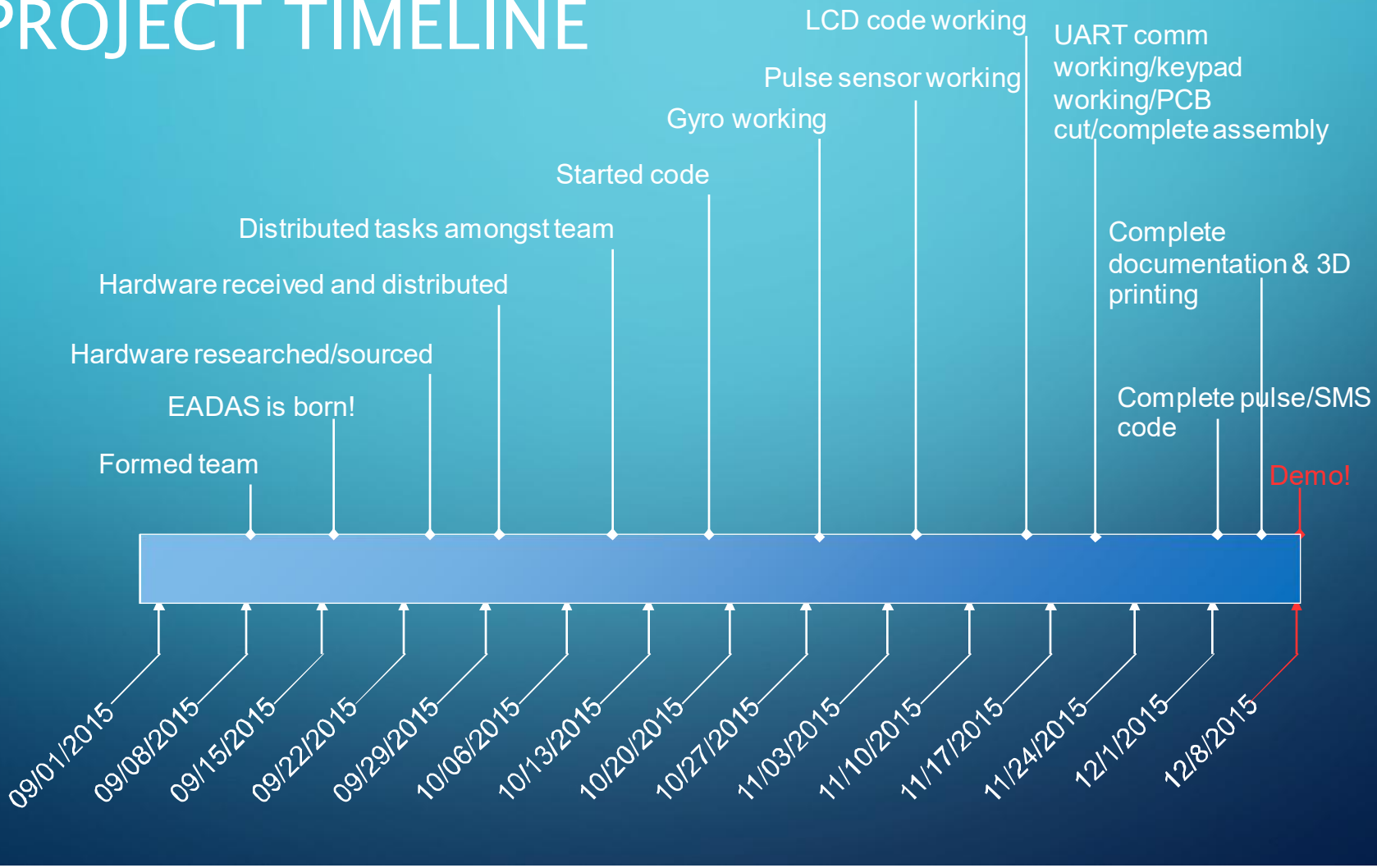
SOFTWARE TOOLS

- Code Composer Studio v6.1 – IDE for TI microcontrollers
- Git – Source code management
- Kicad – Schematic design
- SketchUp – 3D design
- Open source frameworks & components
  - Arduino C++ Libraries ported to Ti Launchpad in C (Gyro)
  - Implementation approach – pulsesensor.com (Pulse sensor)

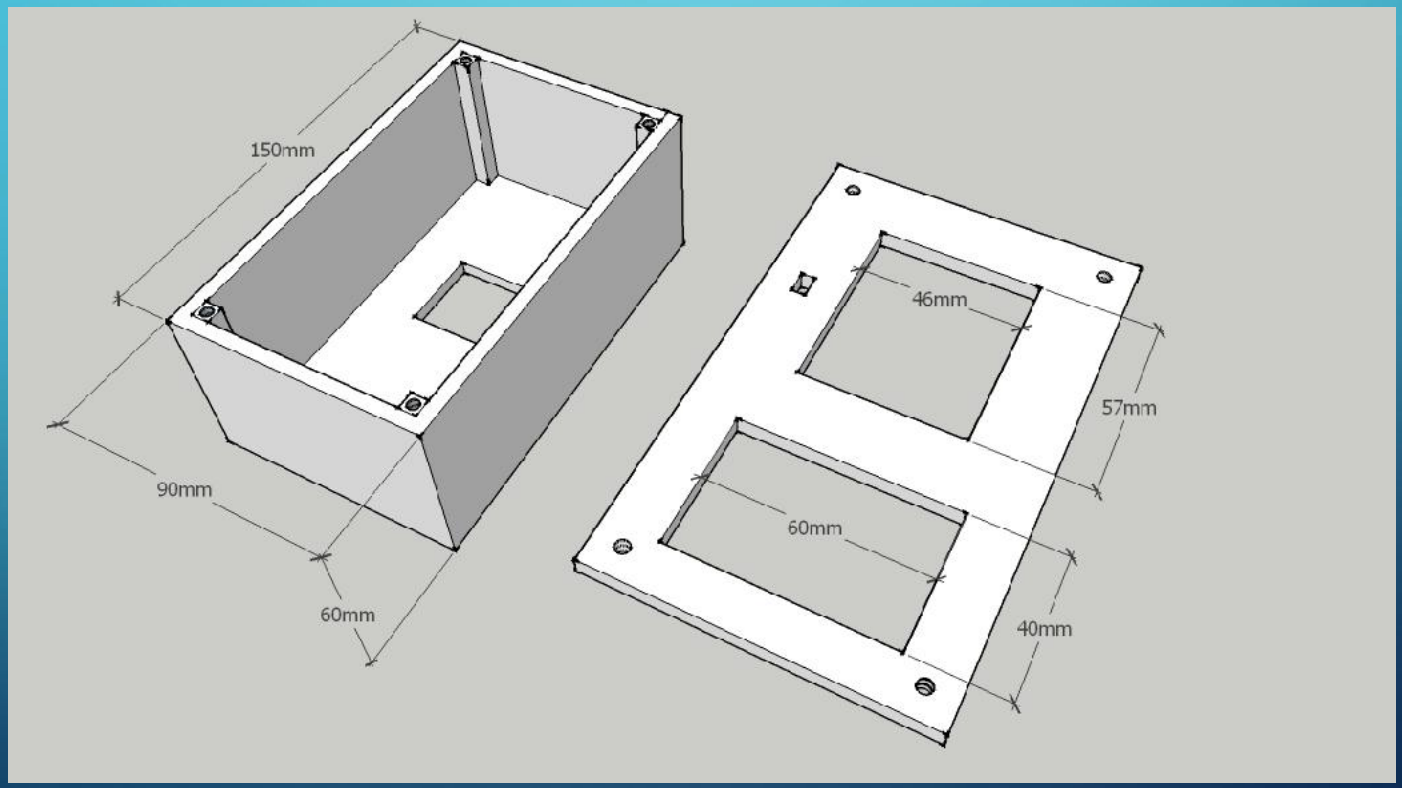
PROJECT TIMELINE



PROJECT TIMELINE



EADAS CASE DESIGN



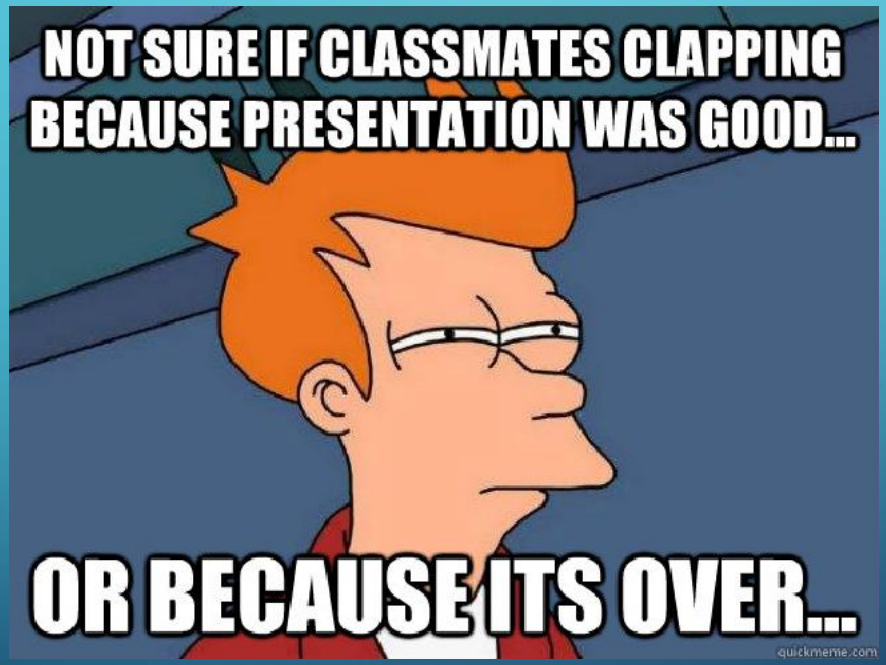
ISSUES/SOLUTION

- SPI interface – Hard to initially understand and get configuration right on Launchpad
- Timing issues – printf to CCS console caused timing issues and UART/Timer/ADC stopped working as expected
- Pulse Sensor – A very finicky sensor. Took a lot of time to troubleshoot errors
- Integration – Required lots of testing and code changes
- Most components purchased from Sparkfun/Adafruit come with Arduino libraries. Took full advantage and ported to MSP430 C/C++
- ISRs – They had to be really fast
- Didn't include buzzard in PCB design
- 3D Printing – Takes a lot of time

DEMO TIME!

QUESTIONS?

MOTD


NOT SURE IF CLASSMATES CLAPPING BECAUSE PRESENTATION WAS GOOD...
OR BECAUSE ITS OVER...
quickmeme.com