

NeoNur :

*A Feeding Device for  
Premature Neonatal  
Nursing*

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# Topics



- Background
- Goals
- Methods
- Conclusions
- Q&A

# Background

- Many babies are born prematurely
- Studying feeding could help monitor infant health, growth, and development
- Nurses at the Children's Hospital of Philadelphia (CHOP) want a device that can monitor feeding outside of the lab

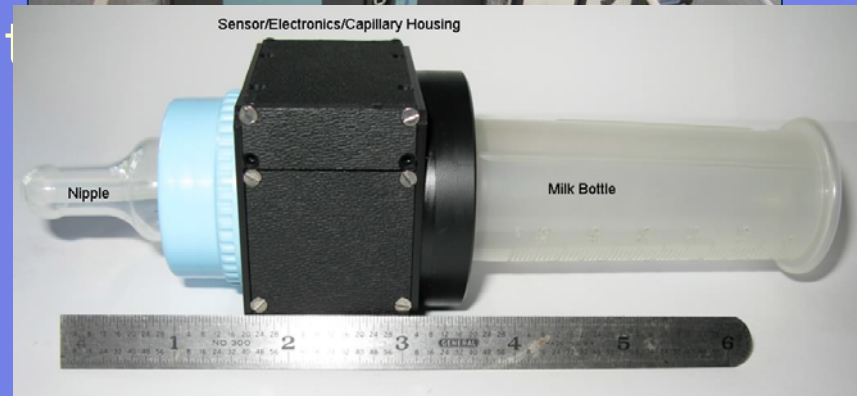
# Background

- The current system is not fit for an ICU
- The Neonur apparatus



- Smaller
- Portable
- Not tethered

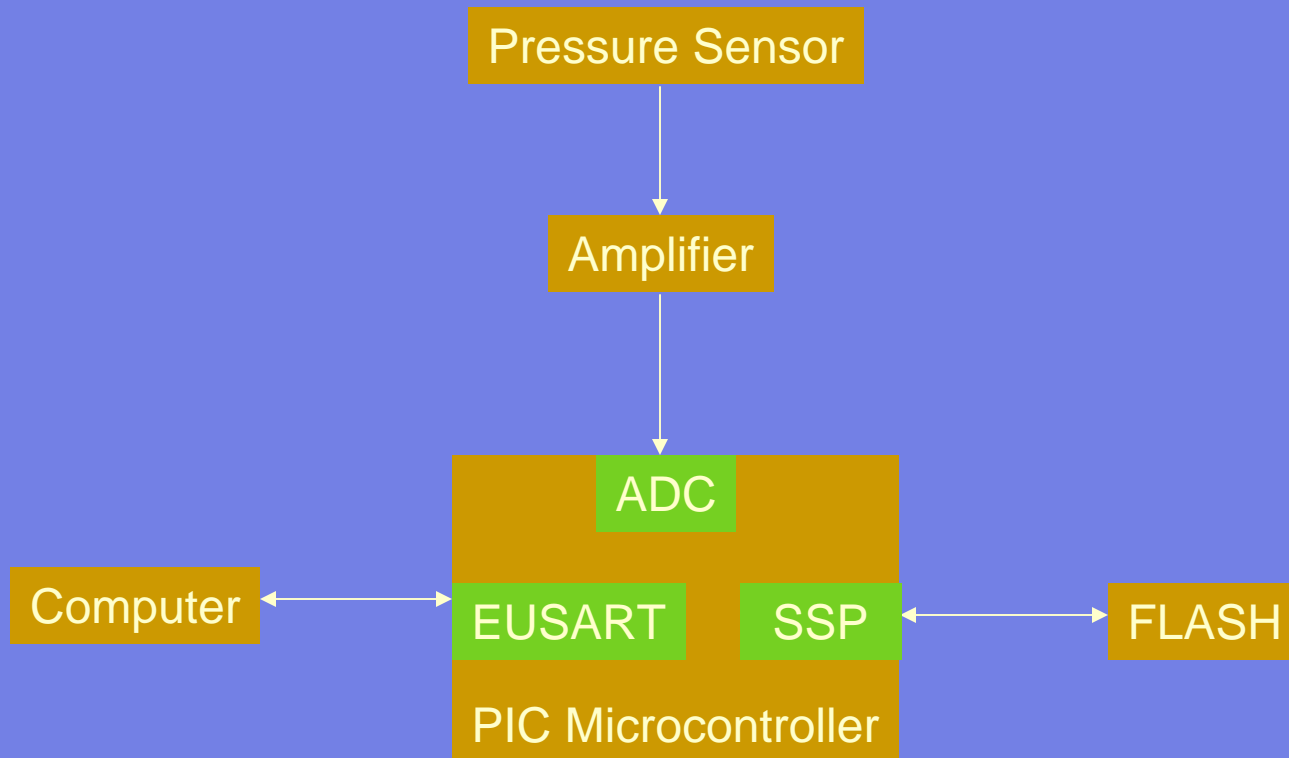
- Has fewer parts
- Requires little or no tools



# Goals for Summer 2008

- Finding which parts of the design are functioning improperly
- Determining the sources of error in the hardware and software
- Implementing a simple solution to fix the problems

# Circuit Schematic



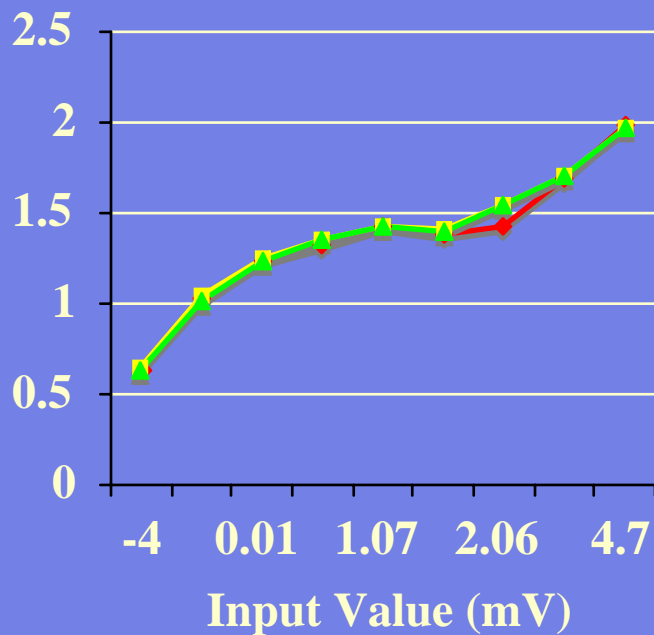
# Methods



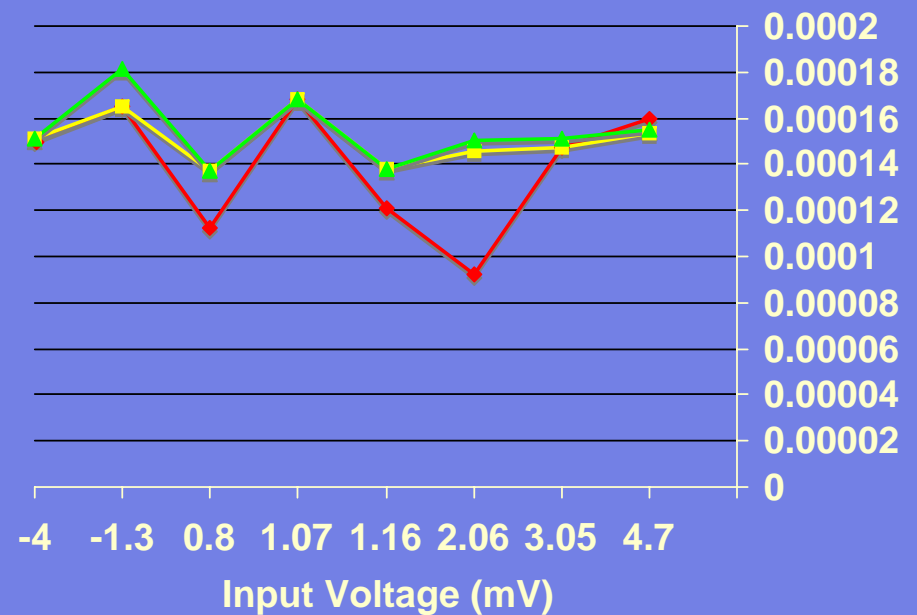
- Tested the circuit by sequentially
  - Each test targeted one element, since each new test had only one new element
- Tools:
  - Testboard and Sockets
  - Power Supply
  - Digital Multimeter
  - Oscilloscope
  - MPLAB IDE/ICD2
  - MPLAB Header

# Testing the Amplifier

## INA128 Testing



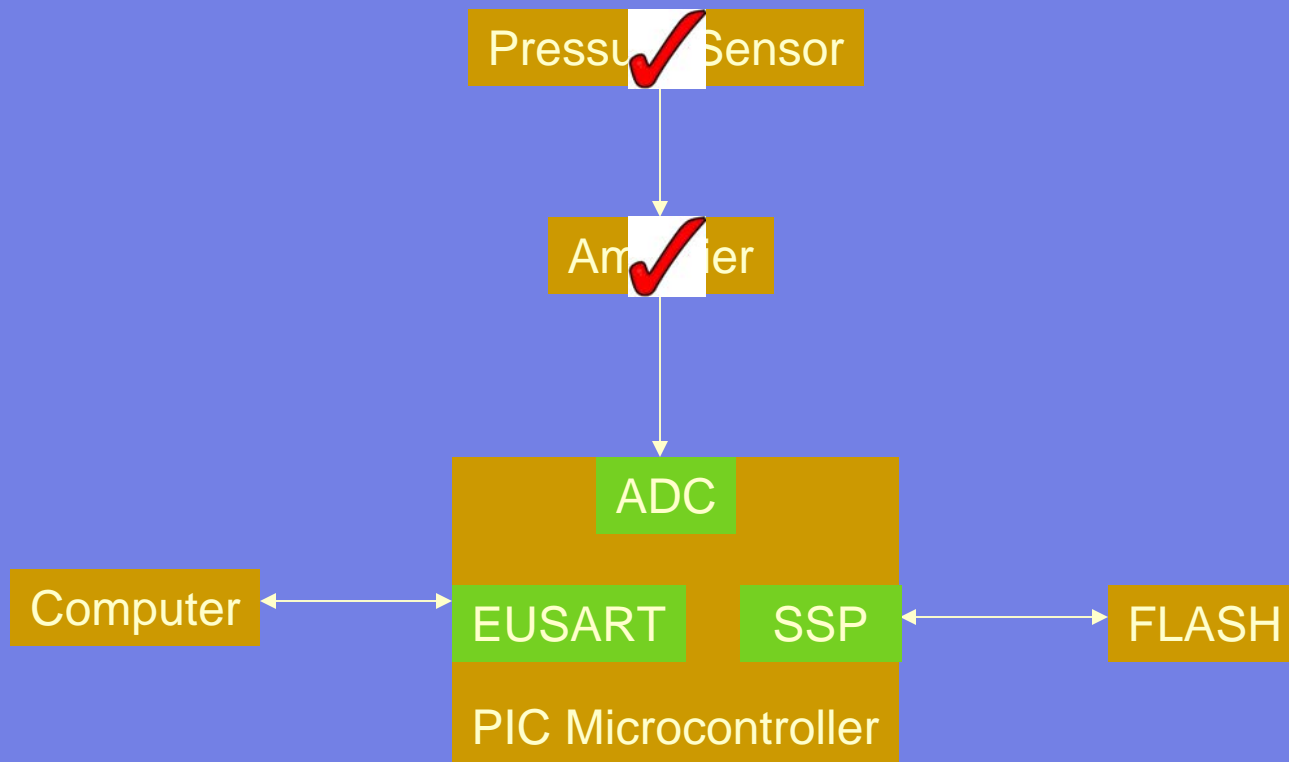
◆ INA128 #1    ■ INA128 #2  
▲ INA128 #3



◆ INA128 #1    ■ INA128 #2    ▲ INA128 #3

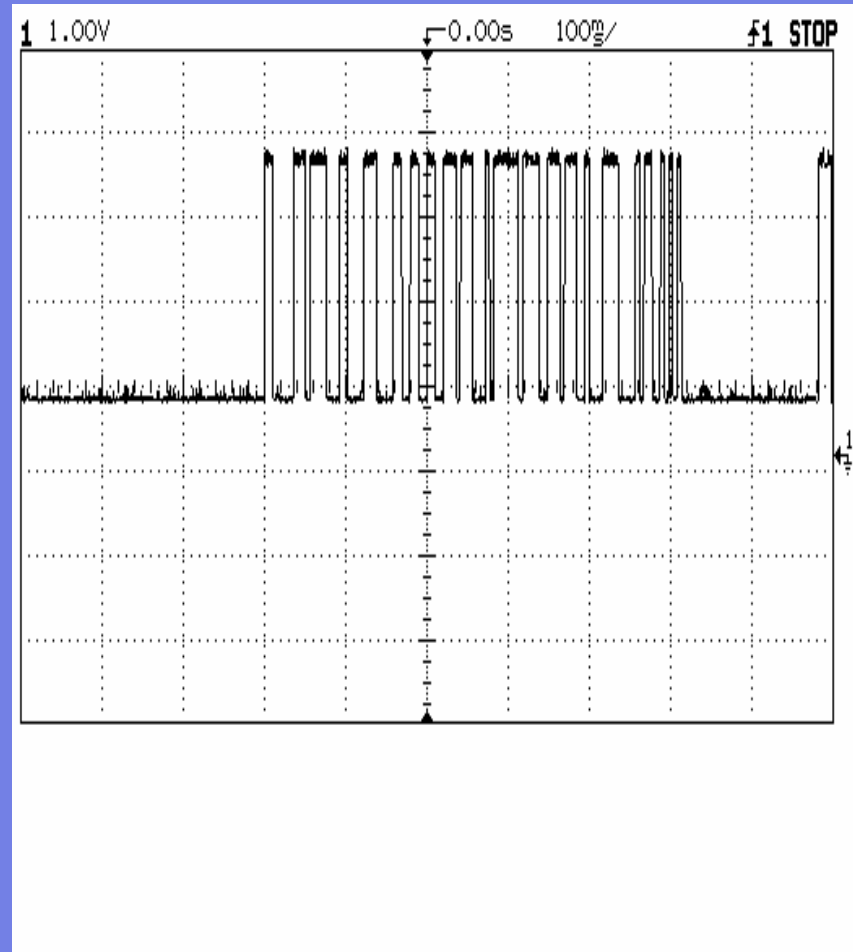


# Circuit Schematic

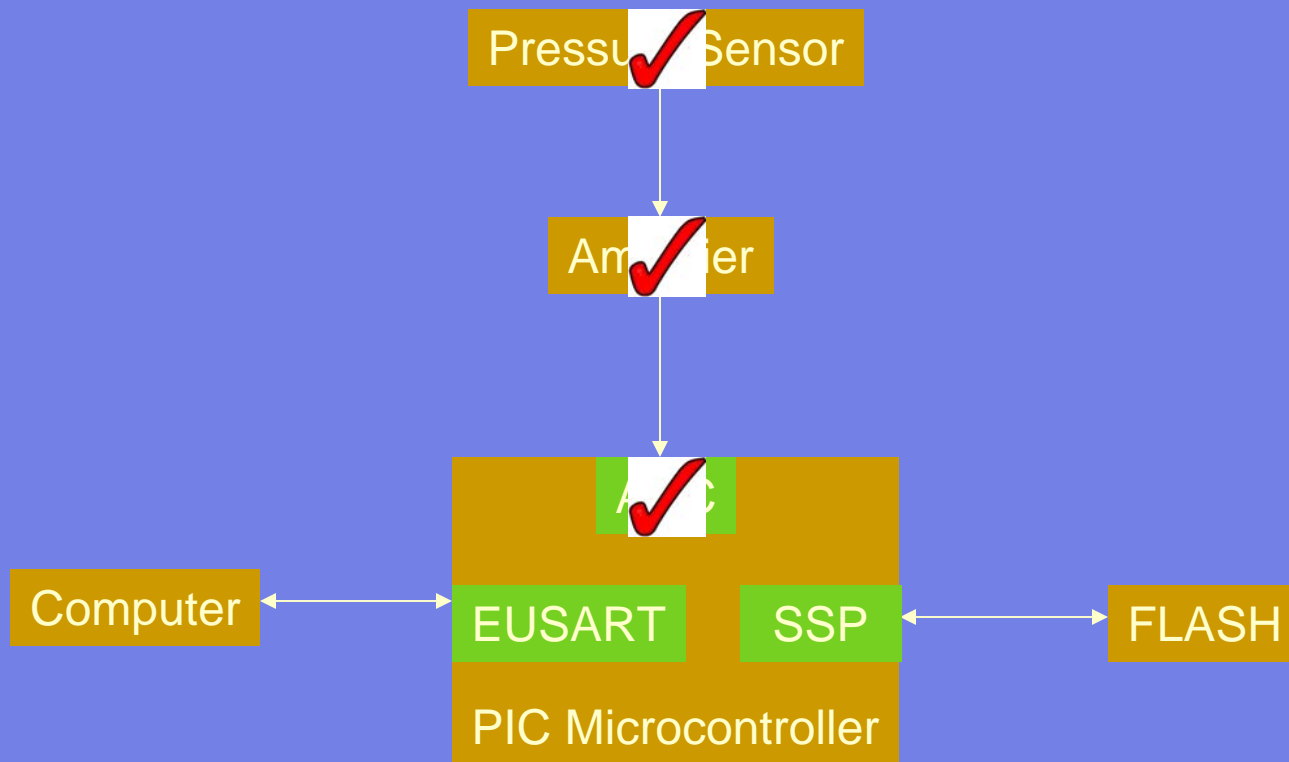


# Testing the ADC

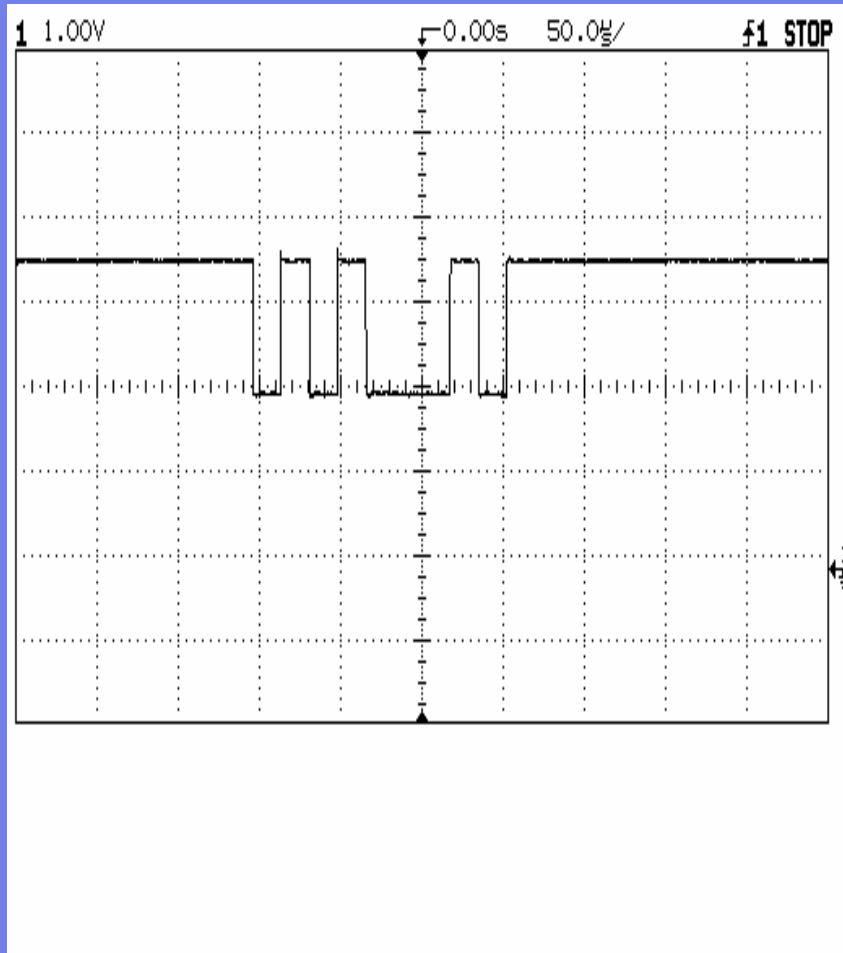
- Sent a sinusoid into the ADC port of the microcontroller



# Circuit Schematic



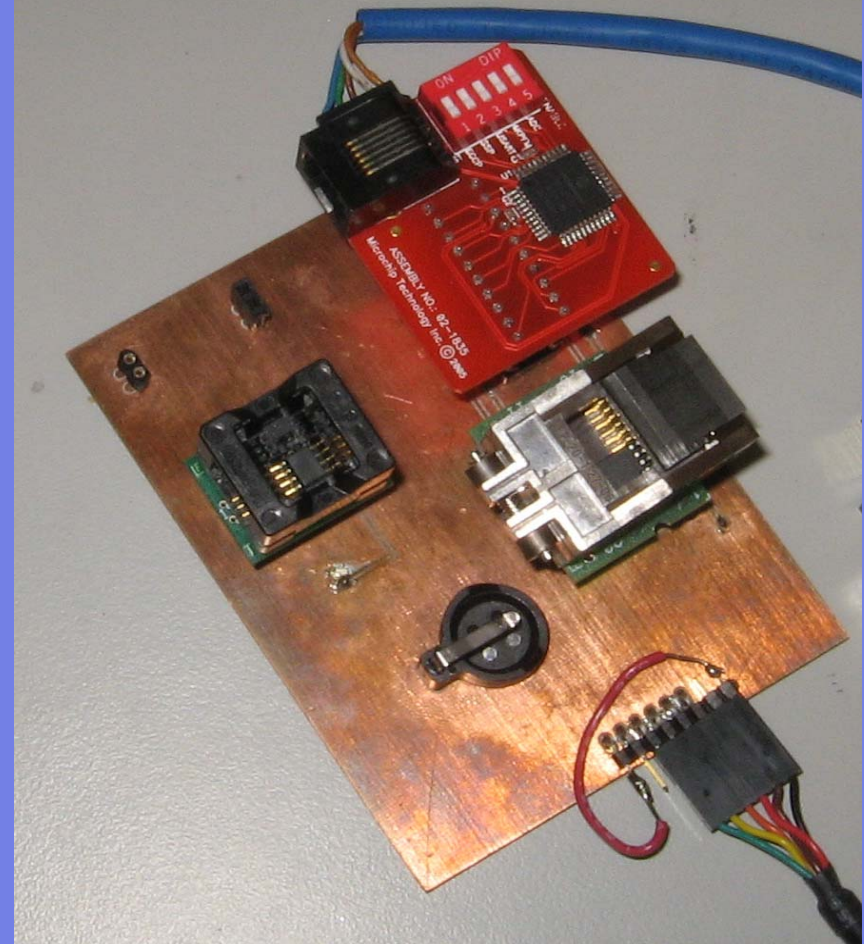
# Testing the EUSART



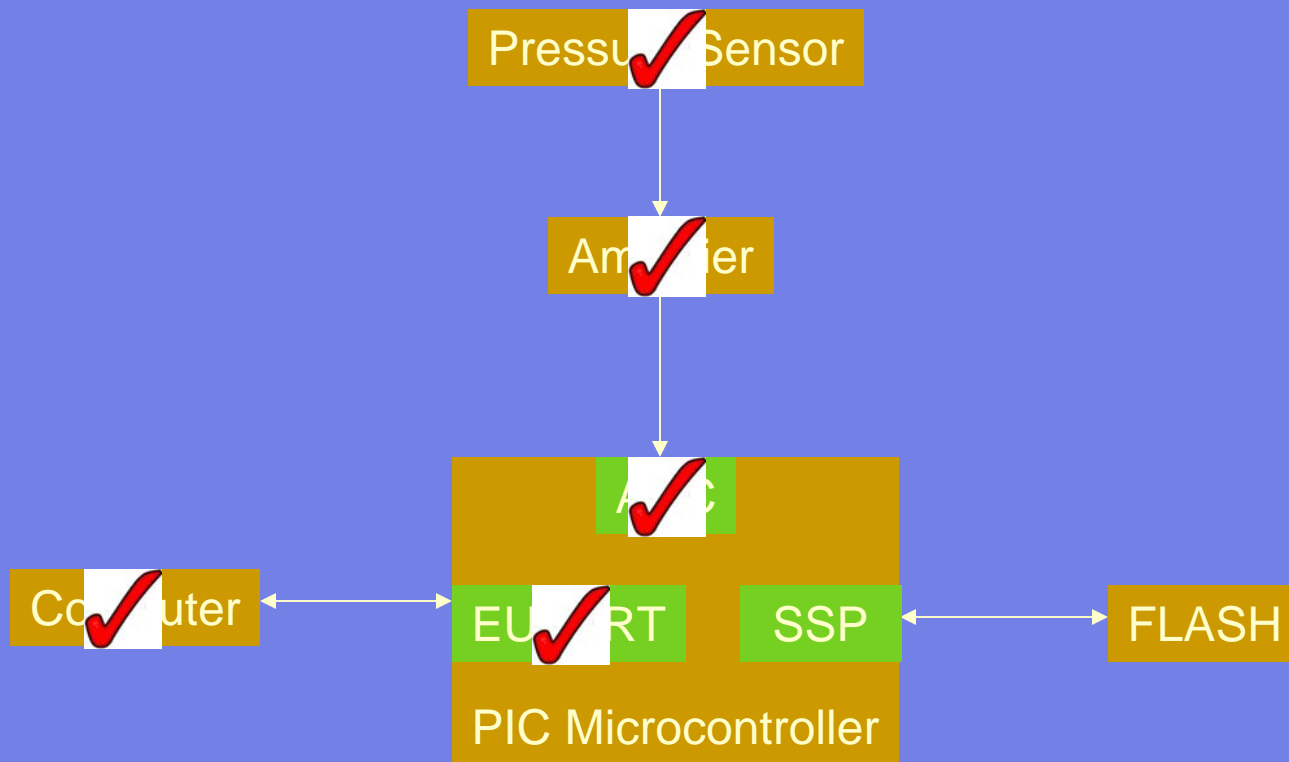
- EUSART signal was not received by the microcontroller

# Debugging EUSART with a header

- A header allows the computer to display what is in the microcontroller
- Found that there were issues with wiring
- Fixed by soldering extra pins and plugging in EUSART cable

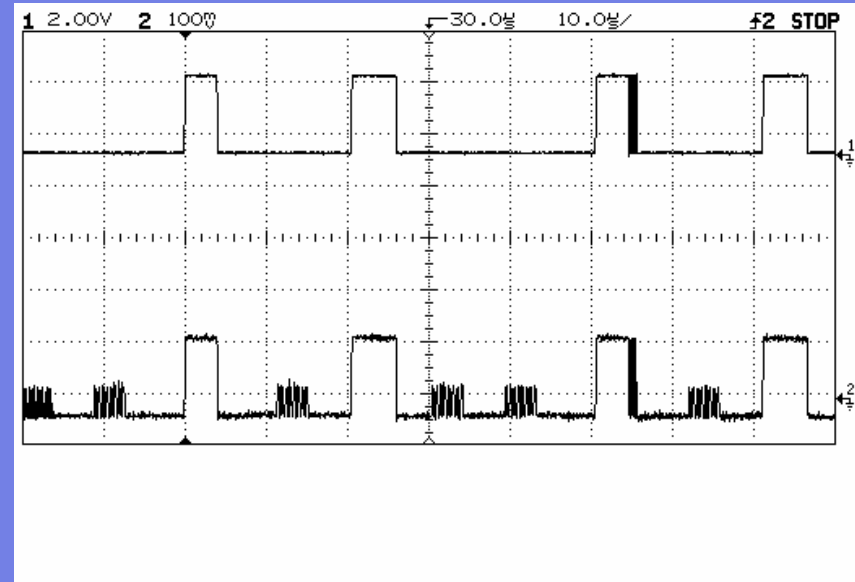


# Circuit Schematic

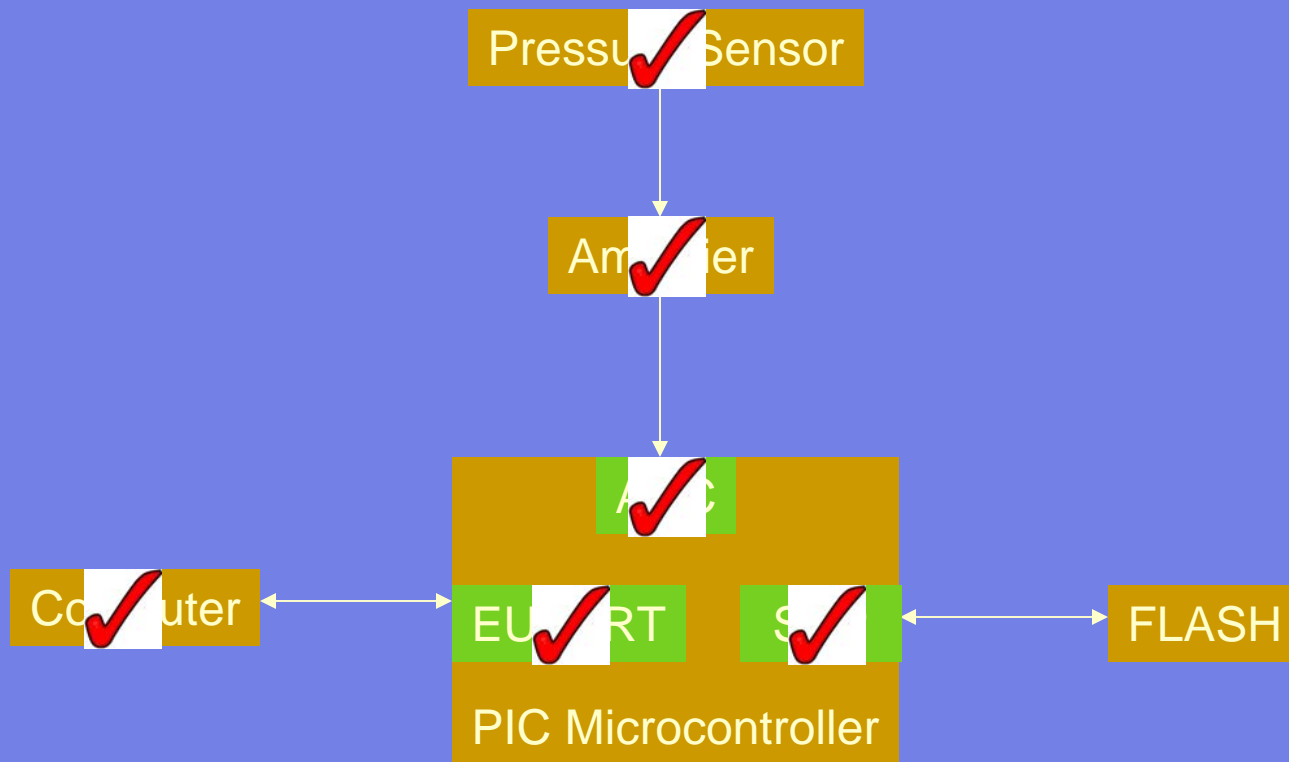


# Testing the FLASH

- Initial SSP communication with the FLASH succeeded
- Compatibility of header with FLASH an issue
  - Working on Voltage Converter



# Circuit Schematic





# Acknowledgements

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Questions?