ENGI 4862 Spring 2017 Prelab 8

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Perform the following tasks/answer all of the following questions before coming into the lab. You will lose marks if your prelab is incomplete.

8-bit Analog-to-Digital Converter

1. Read through the lab requirement document. Then study the details of the ADC module of the ATmega32 microcontroller.

2. What are the ADC registers for ATmega32?

ADCH & ADCL (store the high and low byte of the result respectively); ADMUX (ADC multiplexer selection register); ADCSRA (ADC Control and Status Register A; set prescaling here)

3. What is the function of the prescaler in the ADC module of AVR?

The prescaler in the ADC module of the AVR allows us to change the clock frequency of the ADC.

4. What are the registers related to EEPROM operations for ATmega32?

EEARH:EEARL (address registers for the high and low byte respectively); EEDR(data register); EECR (control register).

5. Sketch a diagram of the interface described in the lab requirement document, including which headers on the STK600 should be connected together, which headers should go to a breadboard, where the analog input signal should go and from where, etc. You must be ready to start building your circuit as soon as you come into the lab.

6. Write both programs from section 3.4 in the lab requirement document. Be prepared to show the program code to a TA.