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Project 4

1. Assume overhead of ISR is 18 clock cycles. The clock frequency of the Arduino is 16MHz.

   Overhead * (Clock Period) = 18 * 1/16MHz = **1.125 microseconds**

2. Assume overhead of ADC is 13 clock cycles. Choose min ADC prescaler 2.

   Overhead*(Clock Period/Prescaler) = 13*(1/16MHz)/2 = **1.625 microseconds**

3. Minimum interrupt time = 1.125 + 1.625 = **2.750 microseconds**

4. Maximum value of Timer1 = 2^16 – 1 = 65535. Choose maximum ADC prescaler 1024.

   MaxVal * (Clock Period/Prescaler) = 65535 * (1 / 16MHz) / 1024 = **4.19 sec**