CPE 301 1104 - Lab Report 4

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1 Abstract/Introduction

This lab allowed us to familiarize ourselves with the use of timers in computer applications, and timer theory in general. Here, we created a program to receive a character from the serial port. This input character corresponded to a tone that would play on an external speaker.

2 Experimental Design

We used an Arduino Atmega 2560 connected to a computer with the Arduino IDE. Altogether, we utilized a solderless breadboard, a speaker, and a 100 ohm resistor connected in series, and a jumper kit.

Our breadboard setup can be seen in Figure 1. The speaker was connected to the kit via Port B6 (PB6) and to ground. Basically, we would read in a character from the serial port (A, B, C, D, E, or F). When 'q' was pressed, PB6 would go low. PB6 was low to start with. Since 'q' (as instructed in the lab instructions) was lowercase, we used lowercase characters as the input for letters A-F as well.

We called the delay function in our code with the frequencies assigned to each note (provided in the lab instructions).

Figure 1: The breadboard set-up.

3 Results

When a character was entered into the serial monitor, the speaker would play output a square clock signal to play the frequency of tone corresponding to that note in the provided toble. When 'q' was entered, the speaker would not output anything (PB6 was low). The speaker was silent to begin with.