

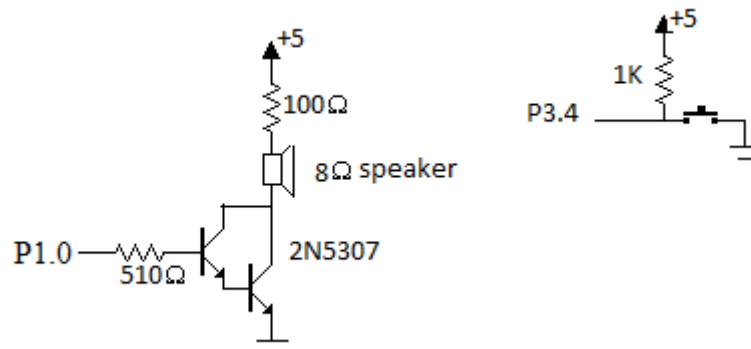
**EE 354**  
**Assignment 2**  
**Playing notes**

**Sept. 7, 2018**  
**Due: Sept. 17, 2018**

Connect a push button switch to P3.4 and an 8Ω speaker to P1.0 as shown below. The 2N5307 is a Darlington transistor pair which has a current gain of  $\beta > 2000$  and its collector current can be up to 1.2 amps. If you output a square wave on P1.0 at frequency  $f_o$  you will hear a tone on the speaker with a base frequency  $f_o$  plus odd harmonic overtones.

For this assignment write the assembly-code such that if the button is pushed one time it will output an A-note (440Hz) for about 1 second. When the button is pushed a second time it will output a C-note (261Hz) for about 1 second. A third push goes back to an A-note, etc.

Your assembly code must contain a subroutine which does the software time delay and a macro which output a bit to P1.0.



Do a demo of your program in class on the due date and turn in the following:

1. A cover sheet with your name, assignment number, and the date turned in.
2. A hard copy of your commented assembly-code