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LAB EXERCISE - Analog input and PWM

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Use two potentiometers to adjust the volume and pitch of the output sound wave.

Inputs: potentiometers 1 and 2

Output: speaker, PC

GOOD LUCK!

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#include "mbed.h"

#include "pindef.h"

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Define the PWM speaker output

Define analog inputs

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AnalogIn volume(PA\_1);

AnalogIn pitch(PA\_0);

PwmOut aout(PB\_10);

//Define variables

float vol;

float pit;

float a = 0.003;

float b = 0.000125;

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MAIN function

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int main(){

while(1){

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Create a saw-tooth sound wave (range: 320Hz to 8kHz)

Make the period and volume adjustable using the potentiometers

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//reads analog signal and gives it a value from 0 to 1

vol = volume.read();

pit = pitch.read();

//for loop that creats the saw tooth wave

//linear function a\*pit+b sets the frequency

//a and b are set to be 8kHz at 0 and 320Hz at 1

for(float i = 0; i < vol; i+=0.05){

aout = i;

aout.period(a\*pit + b);

wait(0.01);

}

}

}

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