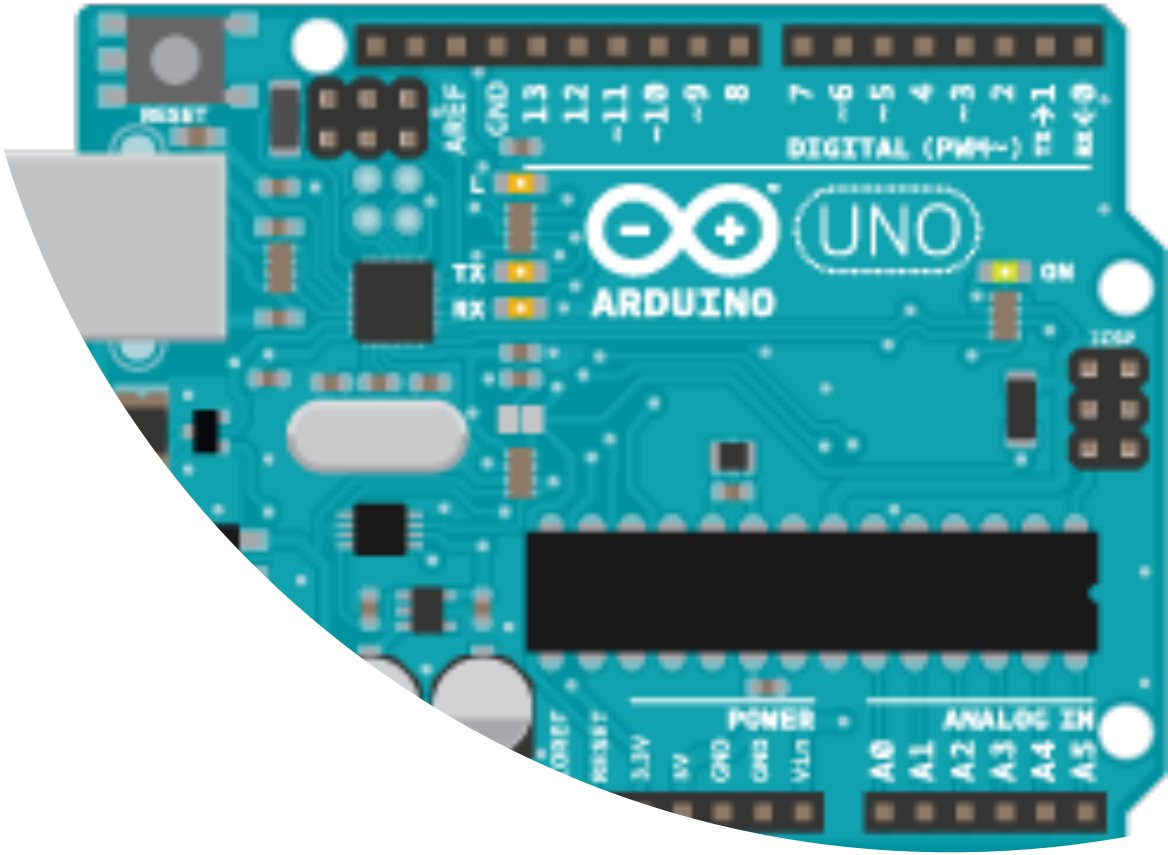
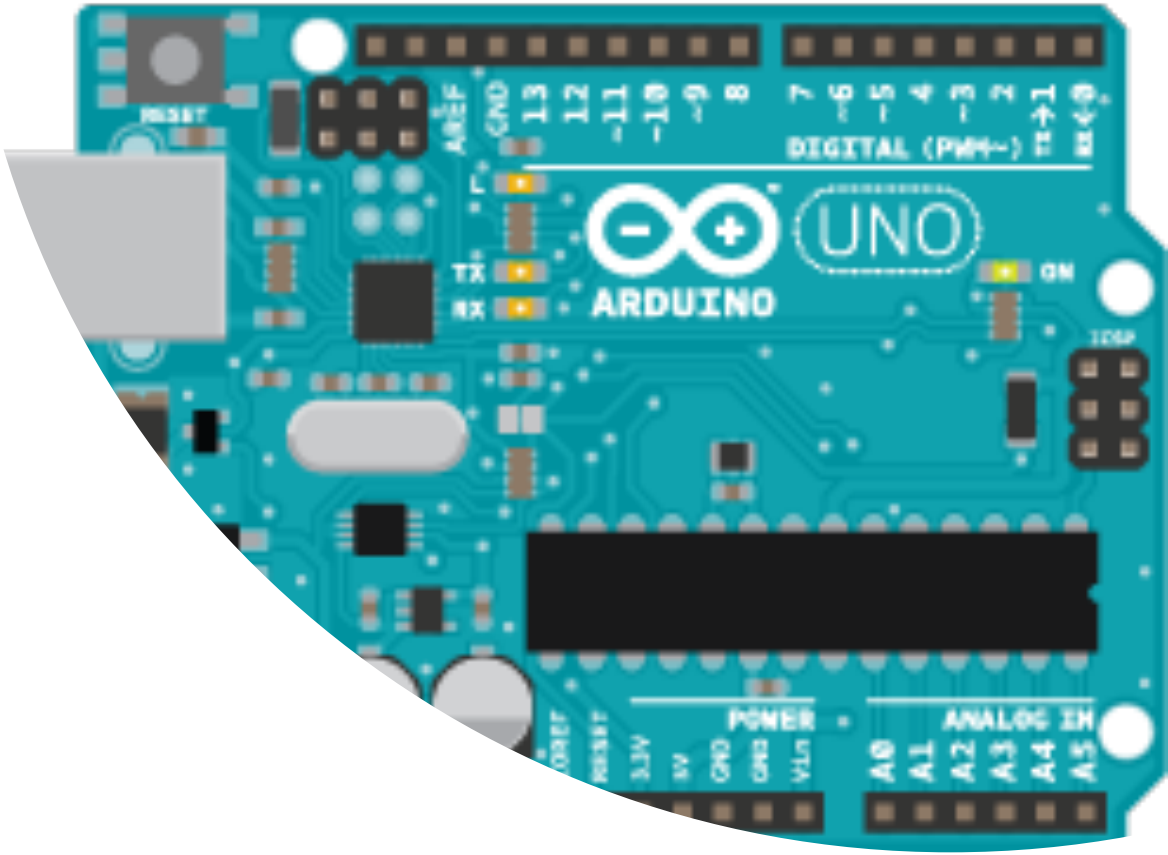


Lab5 Sound Recorder

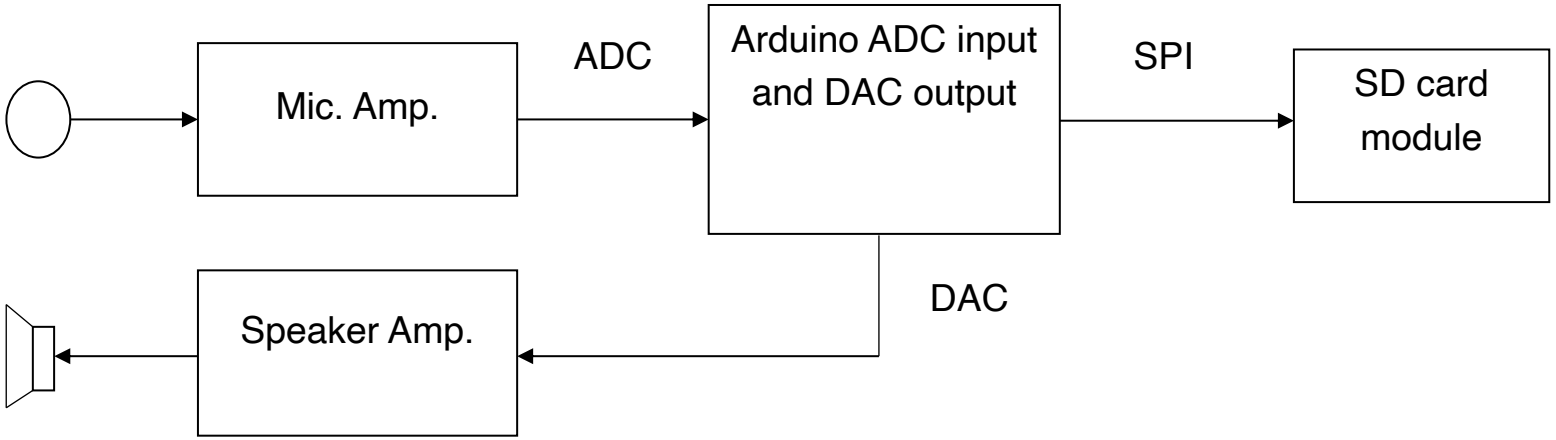
ZHU Binwu

Outline

- Hardware system
- Software
- Requirements



Hardware system



Software: Arduino TMRpcm library[1]

1. **TMRpcm audio; //** create an object for use like recording and playing the audio signal.
2. **audio.startRecording(<Song Name>,<Sample Rate>, <analog pin>);**
   audio.startRecording(<Song Name>,<Sample Rate>, <analog pin>,
   <passthrough mode>); // Starts recording from the specified analog pin
3. **audio.stopRecording(<Song Name>); //** Stops the recording and finalizes the wav file
4. **audio.play(<Song Name>); //** Play a file on output
5. **audio.stopPlayback(); //** stop playback

1. TMRpcm library wiki : https://github.com/TMRh20/TMRpcm/wiki

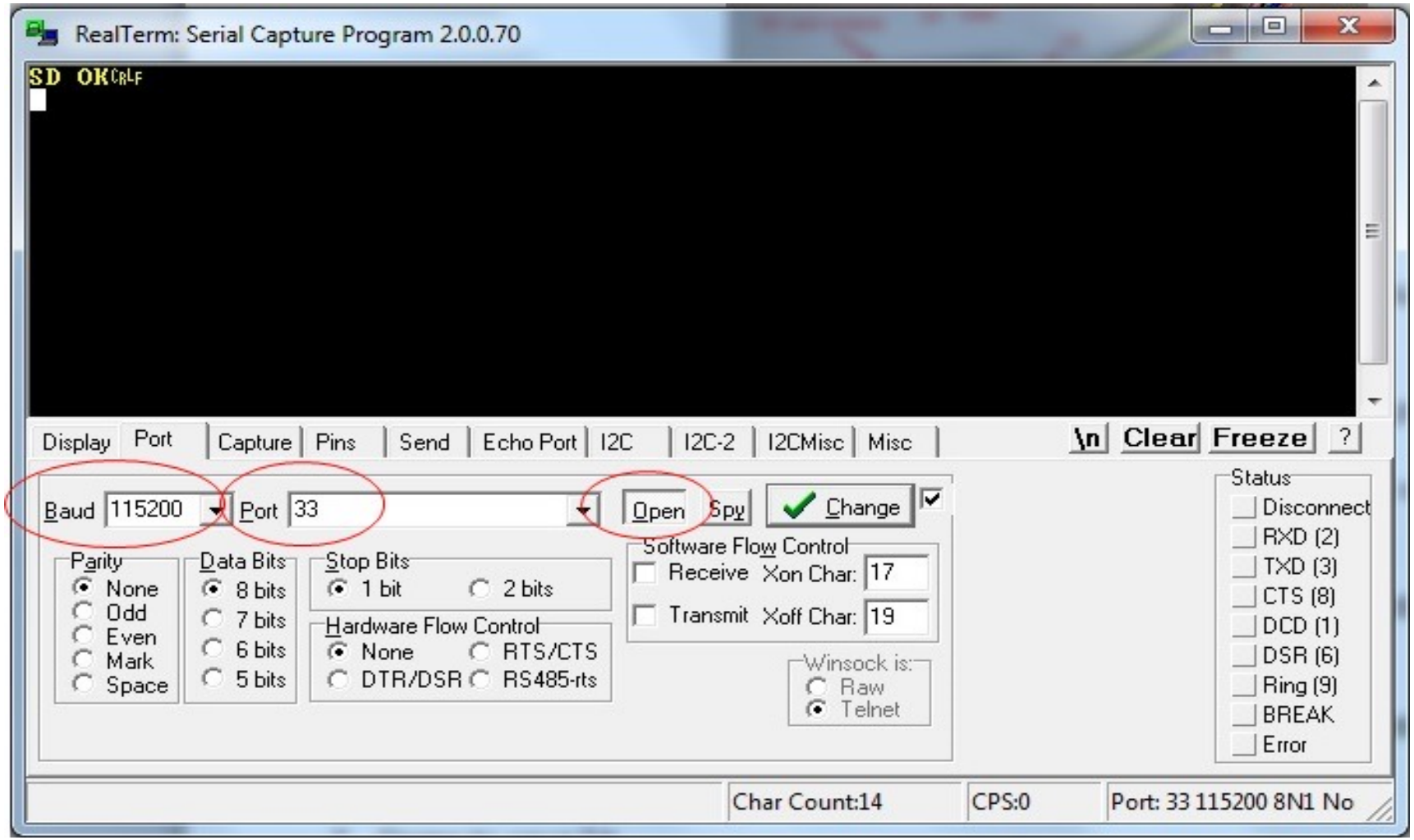
Software: Sampling Rate

According to Nyquist sampling theorem, the sampling frequency $f_{sampling}$ should be greater or equal to two times $f_{\max}$.

$$f_{sampling} >= 2 \times f_{\max}$$

In our example, we assume the $f_{\max}$ = 8KHz (e.g. the highest note of a piano is C8=4186Hz) , so we choose the sampling frequency $f_{sampling}$ = 16 KHz.

Software: RealTerm terminal



Requirements

1. Record a demo of playing your audio recorder;

2. Answer the questions on the Lab 5 Questions page;

3. You are required to submit both demo and answers to blackboard before deadline (11.59 pm of Nov., 11, two weeks later).