

<https://tinyurl.com/yercqmve>

EE346 Microprocessors

Get the ide installed:

<https://www.arduino.cc/en/software>

If you have a SL2102 chip on board, you will need a driver:

<https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers>

Soldering videos

[Thru-hole soldering](#)

[smd part 1](#)

[smd part 2](#)

[using a stencil](#)

Fuji Chip Shooter [CP-643 20 head pick and place machine, in action, 500 parts](#)

[Slower pick and place machine](#)

[EasyEDA Design thru-hole vs smt](#)

[EasyEDA Take two](#)

EasyEDA Ordering SMT Assembly: <https://vimeo.com/650851436>

Here is a 555 timer pcb I made: <https://vimeo.com/399194481>

Here are the internals of the 555: <https://vimeo.com/259178177>

Lectures for arduino

- [Intro to 328p architecture](#)
- [The Role of Radix in Registers](#)
- [BlinkyLights With TINKERCAD, Lab 1](#)
- [20200903 Lecture](#)
- [HW1 and HW2 review 20200908 Lecture](#)
- [Intro to arduino programming](#) (SPI and bit flipping)
- [20201020 HW 7](#) Program Memory
- [20201022 Midterm Review](#)
- [20201103 BDLC and LoadCell HW Review](#)

I2C

- [20201105 I2C Lecture](#)

- [20201103 RTC Clock](#)
- [LCD Digital Clock Demo](#)

PIR

- <https://vimeo.com/242795412> pir sensor (lab 4)
- [PIR sensor with interrupts and tinkercad](#)
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SPI and DACs

- [The SPI Interface+kickstarter project](#)
- [Lecture on SPI and DACs \(20201001\)](#)
- [Lab06, R2 Ladder Dac with Tinkercad](#)
- [Lab06, SPI Dac with sine wavetable](#)

- [20201025 SPI Lecture](#)
- [Lab06. Synthesis 20201007 w/software oscscope](#)
- [Ipad Oscscope showing DSP synthesis](#)

Servos

- [Simple Servo Using TINKERCAD](#)
- [servos using TINKERCAD](#)
- [Continuous servo](#)
- [pwm/pcm adc servos](#)
- [Servo Lab \(no echo in audio\)](#)
- [Servo lab with echo in audio](#)

Steppers

- Lab 08, <https://vimeo.com/239989042> stepper motor
- [20201029 HW8 Stepper Motors Part2](#)

Interrupts and timers

- [Timer Control Registers 20201006](#)
- [Interrupt Driven Audio Processing 20201012](#)
- [A windows app to compute timer code.](#)

DAC

<https://tinyurl.com/yercqmve> integral power of two dac and ripple counter

ADC

- [Intro to Arduino. DACs and ADCs](#)
- [Arduino programming continued \(20200921\)](#) detailed adc sampling based on interrupt
- [ADC and Timers 20201008](#)
- [ADC Programming Details for arduino 20201015](#)
- [Lab05. ADC and Serial IO for plotting](#)
- [Lab05. ADC and Serial with Tinkercad](#)

TinkerCad for Laser Cutters

<https://vimeo.com/612782813> box with servo Holes

<https://vimeo.com/613864526> machine shop video

NRF24L01 Notes

- [20201112 Parametric Serial Ports](#)
- [20201203 Review for final](#)
- [20201207 Review for final part 2](#)
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- [20201209 Final Review](#)

- [20201210 Linear Stepper and Ethernet with final review](#)

NRF24L01

- [20201109 NRF24L01 Lecture](#)
- [installing the nrf24l01 library](#)
- [Using nrf lite tx and rx lib with pro micro and uno and nrf24l01](#)

DTMF

- [20201117 Final Project DTMF synthesizer](#)
- [20201119 HW11 Review and DTMF Synth](#)
- [DTMF Speed Test Demo](#)
- [20201130 DTMF Decoder](#)
- [20201202 DTMF Lab Review](#)

Grants

CT Next grant for students <https://vimeo.com/633095343>

Communications

- [Getting bluetooth to work with the promicro bluechat!](#)
- [Getting the USB Host Shield to work with the UNO and MEGA](#)
- [getting the PS/2 keyboard to communicate with the arduino uno](#)
- <https://vimeo.com/243899505> - telnet server for arduino
- <https://vimeo.com/242843274> - seed studio enet shield
- <https://vimeo.com/242842768> - wiznet power draw
- <https://vimeo.com/489457918> - linear motion controller
- <https://vimeo.com/241709214> load cell

Ultrasonic Sensors

- [3 pin ultrasonic sensor](#)
- [4 pin ultrasonic sensor](#)
- [Lab 20200909 section 1 ultrasonic sensor](#)
- [Lab 20200909 section 2 ultrasonic sensor](#)
- <https://vimeo.com/605513130> - Servo driving ultrasonic
- <https://vimeo.com/622444380> - servo with parabolic dish
- <https://vimeo.com/631340268> - 3 sonars with classes (instances!).

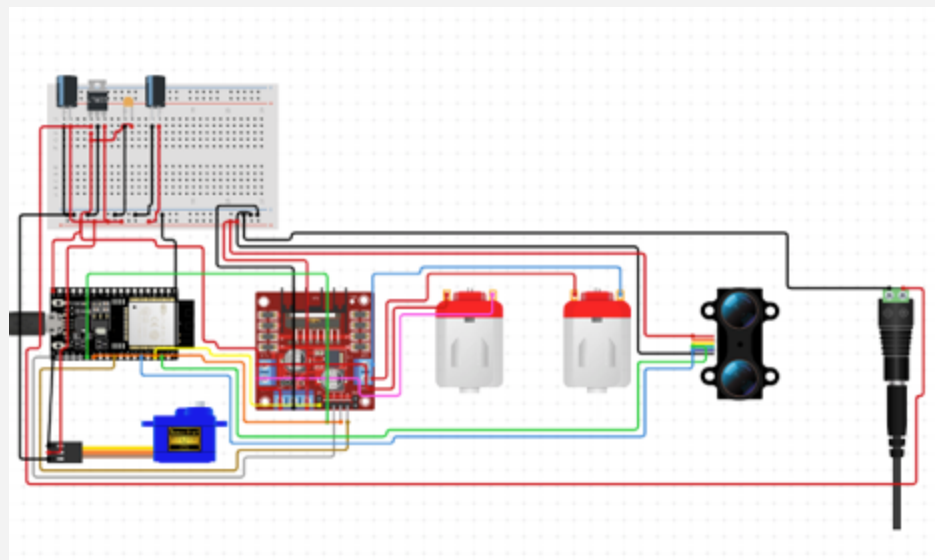
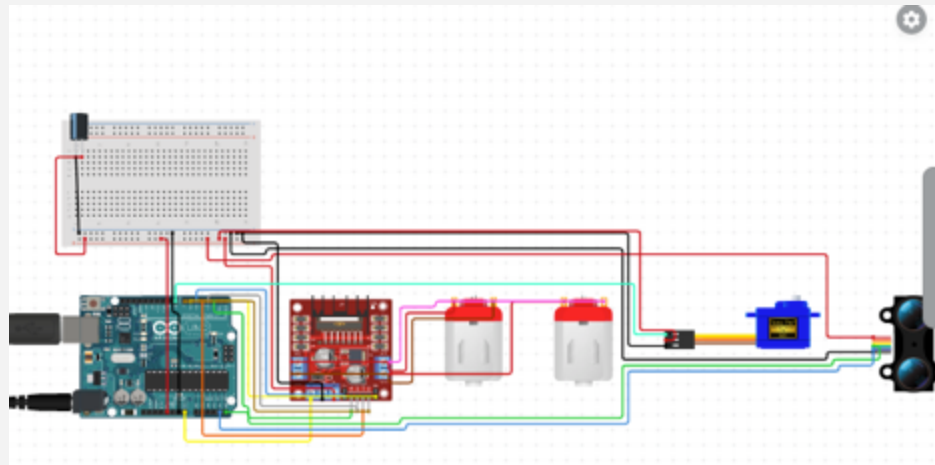
LIDAR

<https://vimeo.com/633304115> - Cheap chip-based lidar sensor
<https://vimeo.com/638155114> - laser cut car and rotating lidar

Car bots

- [Balance bot with continuous servos](#)
- [Cheap car with dc motors and hot glue](#)
- [Robot on a boxtop](#)
- <https://youtu.be/vyZwYUF-wi0>

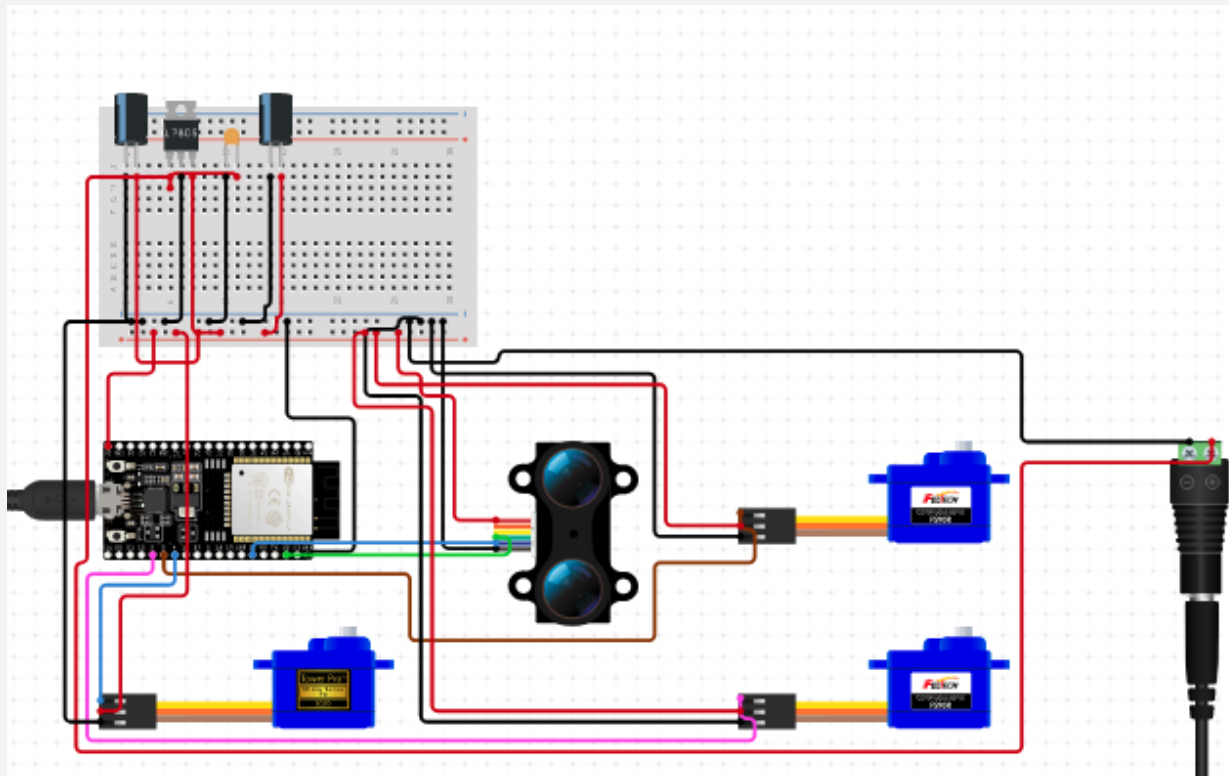
- https://www.amazon.com/SmartFly-info-LIDAR-053-YDLIDAR-Frequency/dp/B07DBYHJVQ/ref=sr_1_2?dchild=1&keywords=YDLIDAR+X4&qid=1629472177&sr=8-2
- https://www.youtube.com/watch?v=BmNelv_gR9Q&list=WL&index=24



• YDLIDAR X4



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- Or a 1D lidar on a servo with continuous turn servos for the wheels and an esp32



Esp

- Scale controller <https://vimeo.com/197173210>
- <https://vimeo.com/197678758> thing speak
- Wire details on loadcell <https://vimeo.com/197166150>
- Config of wifi <https://vimeo.com/197088853>

TINY 85

- [How to install tiny 85 and find the hid lib](#)
- [How do configure digispark automatically](#)

Libraries and separate compilation

- [Installing a library from the library manager](#)
- [Making a library for deployment with a zip file](#)
- [Putting libs into GITHUB](#)
- [Publishing libs to the library manager](#)

PenTesting - Ethical Explorations into penetration testing a system

- [Create a reverse shell on a mac](#)
- [Create a reverse shell on windows 10](#)

HOME