

Week\_8

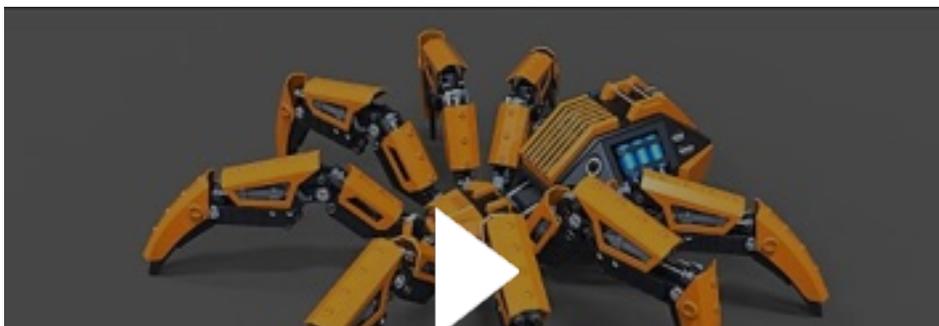
# Trinity Robotics

10/04/2022

Today's Class we will learn about a Robotic Designing strategy called memory, CPU, and algorithms...

<https://www.youtube.com/watch?v=klpbY7pwYF4>

[112 Newest Robots That Will Blow Your Mind](#)





A Computer is a machine that can carry out commands.  
Every computer has **memory**, that lets it store values.

Here is an example of the assignment operator:

"=" equals

Example:

Var X = 8;

This means: create a memory location, we will use the name x to reference this memory location. Next store the integer 5 into this memory location.

X = 5 is an example of a command for the computer to do this operation. Now lets do something else with this memory location called X.

Y = 1;

X = X + 3;

```
Var x = 0;  
X = x + 2;
```

```
X = x + y ;
```

Memory

```
Y = [8]
```

```
X = [ 10]
```

In this example the computer will look at the memory location "X" and see the contents of the location, then add 1 to that value, last store the new value to that location. Therefore  $X = X + 1$  ; is the same as saying X <will be assigned with the value> 5 <the original value stored in the memory location X> + 1.

What value is stored in the memory location X ??

Very Good, an important part of coding is understanding what the computer is doing...

Next: lets look at this command

(JavaScript)

```
Var Y = 10;
```

```
Var Z = 3;
```

Now we know that memory location "Y" has the value 10, and memory location "Z" has the value 3 stored in them.

Var W = 0;

W = Y + Z + 1/2\*(12)

W = (10) + (3)

= 13 + 1/2 \* 12 = 6

13 + 6

w = 19

W = Y + Z + 6

What is the value stored in W ? 19

Var X = 0;

X = W + Y + Z;

What is the value stored in X? 26

What is a Flowchart ?

A flowchart is a diagram that represents a series of steps to accomplish a task.



Flowcharts include:

- > Start & End points
- > command
- > process
- > condition
- > loop

**Command**- something the computer program will do

**Process**- something the computer program will collect as input or output, a process may be a series of commands

**Condition** - is a decision the computer needs to make. Often the results of the decision is True or False / Yes or No. Decisions are at the heart of computer programming.

**Loop** - is a way for the computer program to execute many commands for a pre-determined number of times; usually until a condition is true.

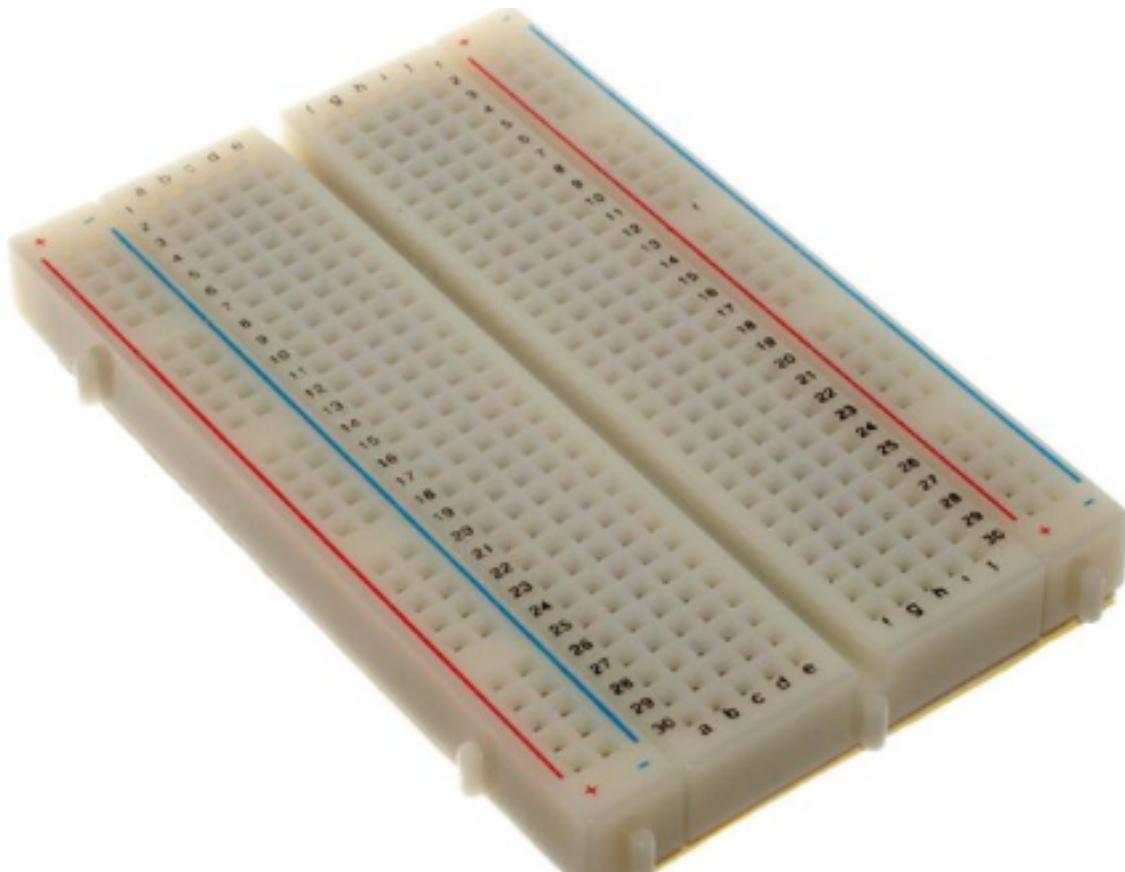


Circuits Video:

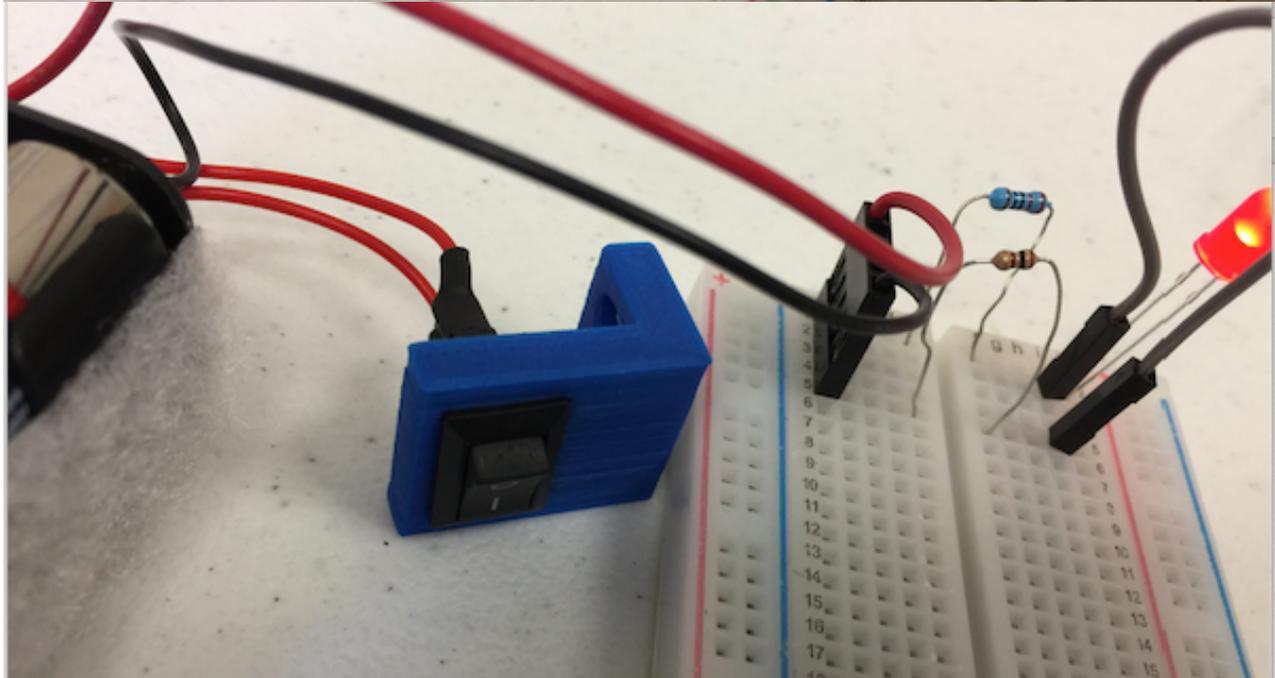
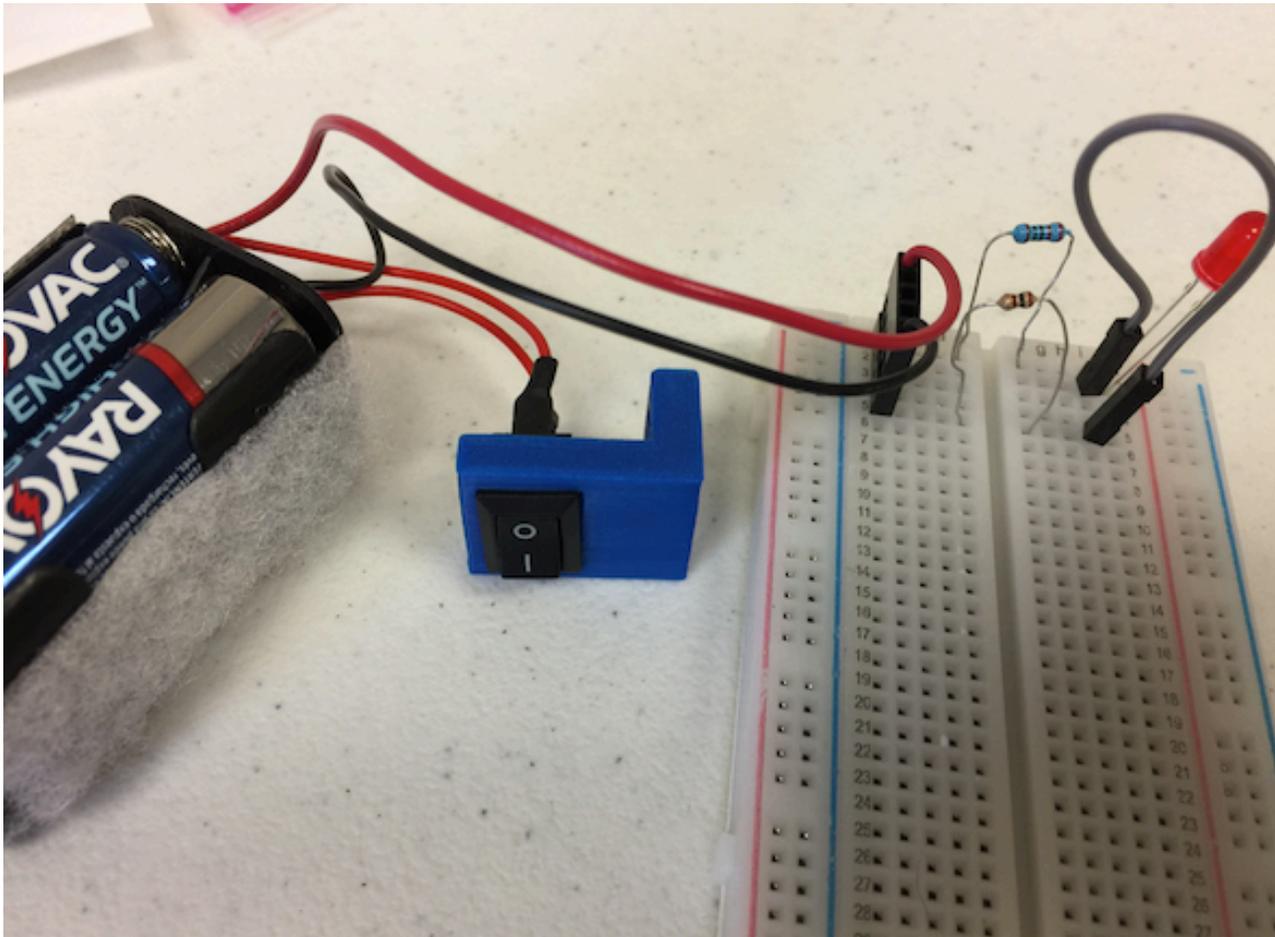
[http1://www.youtube.com/watch?v=MMD32gyHVQw](http://www.youtube.com/watch?v=MMD32gyHVQw)

A **breadboard** is a construction base for [prototyping](#) of [electronics](#). Originally the word referred to a literal bread board, a polished piece of wood used for slicing bread<sup>[[citation needed](#)]</sup>.<sup>[1]</sup> In the 1970s the **solderless breadboard** (a.k.a. **plugboard**, a terminal array board) became available and nowadays the term "breadboard" is commonly used to refer to these.

Because the solderless breadboard does not require [soldering](#), it is reusable. This makes it easy to use for creating temporary prototypes and experimenting with circuit design. For this reason, solderless breadboards are also popular with students and in technological education.



Lets prepare to build our own Circuit -







Here are the steps I want you to follow:

- (1) identify your breadboard... Remember the rows are connected  
-> like connecting 2 wires
  - (2) put 4 batteries into your battery holder.
  - (3) turn the switch to the off position
  - (4) connect the power switch into the breadboard  
-> red wire in row #1, the black wire in row #5
  - (5) connect the blue resistor into row #1  
-> row 1 column e to row #1 column f
  - (6) connect the LED (Light Emitted Diode )  
Longer leg in Row #1 column J  
shorter leg in Row #2 column J
  - (7) connect a wire from row #2 column i to row #5 column i
  - (8) connect the brown resistor from row #5 column f to Row #5 column e  
-> now examine and verify your circuit is complete.
- => test your circuit by turning on the switch.

