ARTBOTICS
Combining Art and Robotics

(r)evolving museum

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Friday, February 24, 2012
Artbotics at a Glance
ARTBOTICS

Programming with Cricket Logo

Drawing with Cricket Cars
Drawing with Cricket Cars
Super Cricket

Programmable microcontroller made by Gleason Research, powered by 4 AA batteries, can also be wired to a power supply.

Eight servo motor ports: 1, 2, 3, 4, 5, 6, 7, 8

Six sensor ports: a, b, c, d, e, f

Four DC motor and light ports: a, b, c, d

Two BUS ports

Cricket Beamer

Connects to computer through USB cable

ON/OFF switch

RUN/STOP button
Cricket Logo

Programming language for the Cricket -- Simplified version of Logo.
Cricket Car

DC motor controlled wheels

Pen holder

DC motor controlled wheels

Posts to hold Super Cricket

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A Cricket Logo program is comprised of a series of **procedures**: a set of commands.

All procedures start with **to** and then the procedure name.

All procedures end with **end**

The procedure you want to run when the **Run/Stop button** is hit on the Cricket is named inside of the **Run This** box.
The motor ports on the Super Cricket are labeled a, b, c, d. They are referenced in Cricket Logo by these letters.

The motors that control the Cricket car are plugged into a and b.

You can select both motors at once by typing ab,

We can set the motor’s direction with thisway and thatway, then tell it to go onfor a certain amount of time.

Timing in Cricket logo works in tenths of a second
20 = 2 seconds
Changing Motor Speeds

- Motors can have a speed / power level between 0 and 8.

- You can change the motor’s power and then turn it on.
  
  `ab, setpower 2 onfor 20`  
  `ab, setpower 8 onfor 20`

- The speed and torque of the motor are adjusted using the `setpower` command.
Turning the Cricket Car

- There are multiple ways to make the Cricket car turn.

- One way is to set both motors to the same speed, but one motor to thisway and the other to thatway.

- This will make the car spin in place.
Turning the Cricket Car

What’s another way of turning the Cricket car?
Turning the Cricket Car

- What’s another way of turning the Cricket car?

- Setting both motors to the same direction, but two different `setpower` values for each motor.

- This will make the car arc as it drives.
To create patterns with the Cricket car you have to write a series of commands that will draw some kind of shape using the pen.
Repetition

- The only thing missing is repetition. You have to repeat the drawn shape in order to make a pattern.

- You can repeat a set of commands a number of times.
  \[\text{repeat 3 [ \textit{commands} ]}\]

- Or loop them indefinitely.
  \[\text{loop [ \textit{commands} ]}\]
Drawing with Cricket Cars
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