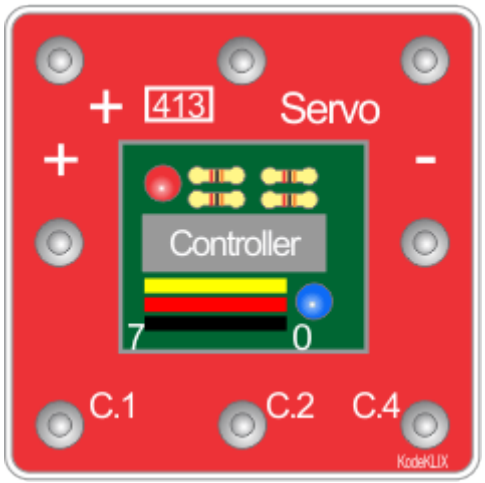
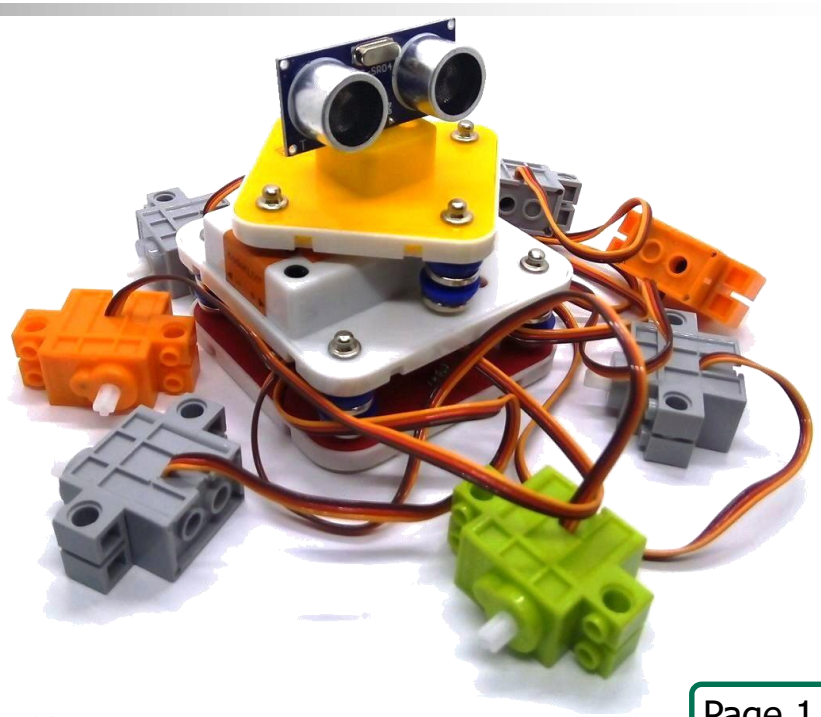
KodeKLIX®

Servo Module for Robotics

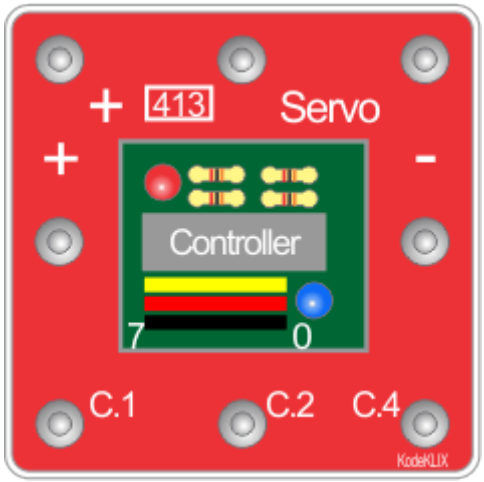
Quick Start Guide





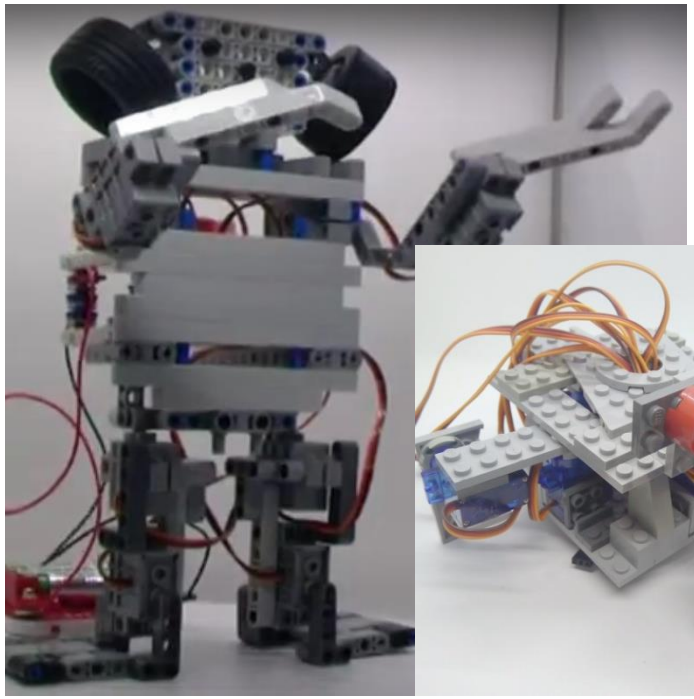
Introduction

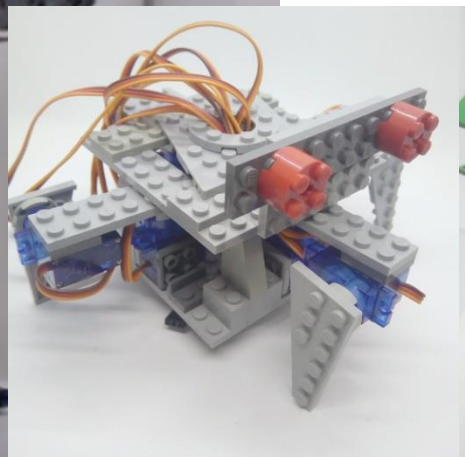
- The KodeKLIX® servo module has the ability to control up to 8 standard servo motors simultaneously and jitter free
  - Simple one block command required from the SnapCPU to update all 8 servos
  - Using variables to store and change position makes this easy for both young or inexperienced coders
  - Standard connector means freedom to choose servos

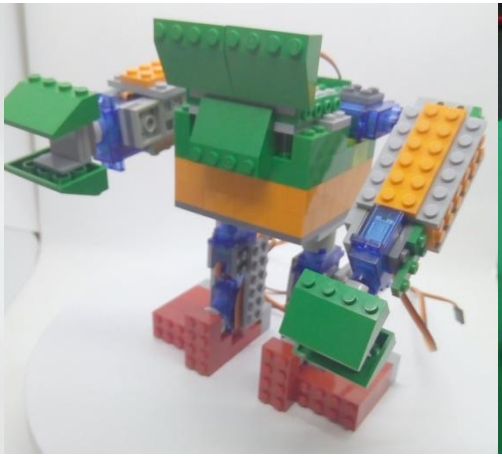


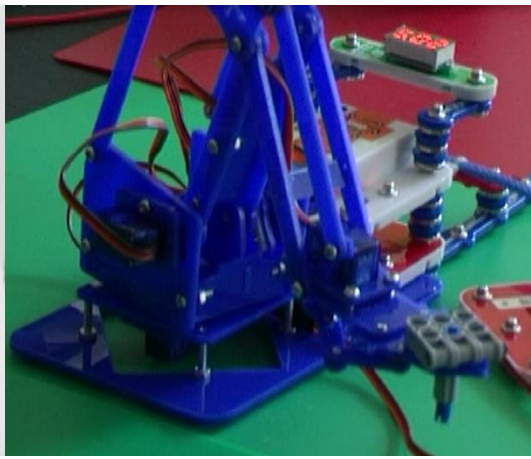
What sort of Robotics?

- The standard SnapCPU can power and control up to three servos; serious robotics normally calls for four or more degrees-of-freedom (DOF, aka servo motors)





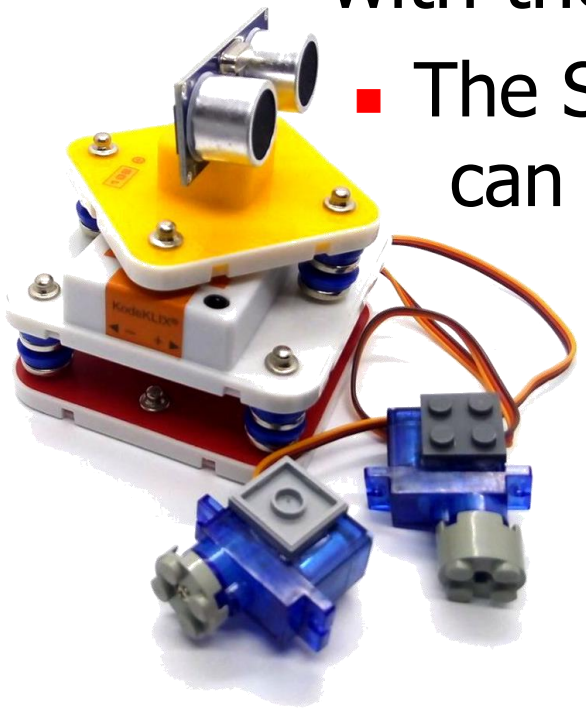


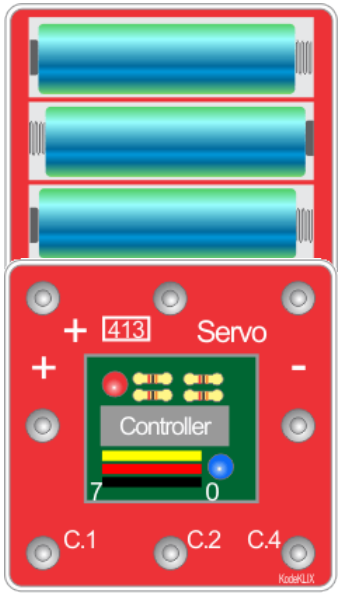


Left-to-right: 8DOF dancing robot (Geekservos), 8DOF quad-pod 'spider', 8DOF with customised SG90, 4DOF robotic arm kit

Power & Configuration

- Servos use a lot of power and so a 4.5V battery pack is a must!
- Power connections are located to align with the [70] battery pack
  - The SnapCPU20 or SnapCPU08 can readily be stacked on top of the servo module 'arduino style'; even the ultrasonic module can be stacked and powered from the motor drivers



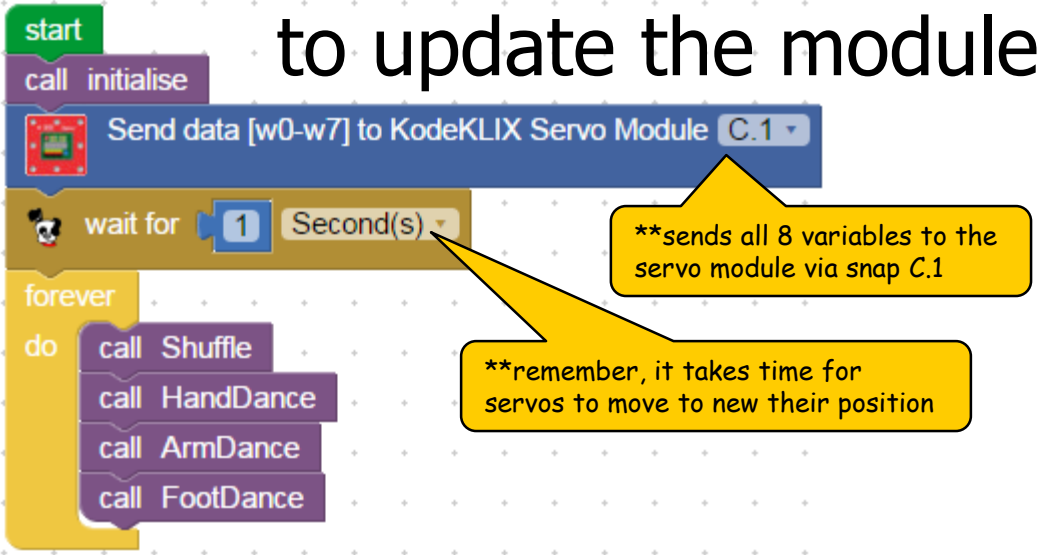


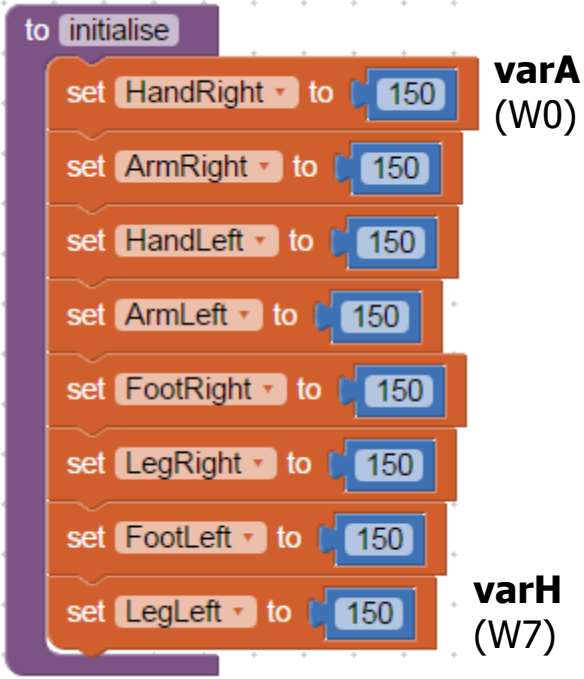
Servo Motors and Options

- The standard SG90 is a popular design, but quality can vary between suppliers
- Geekservo make a nice 'Lego compatible' servo
  - grey is 270° positional; others are 360° rotational
- Customised 'Lego compatible' SG90 can be made with real Lego parts and glue

Servo Module Coding Blocks

- Variables W0-W7 correspond to varA through varH in Blockly
- Initialise these as the first step to reserve them for your robotic code
- Use the Send data BLOCK to update the module

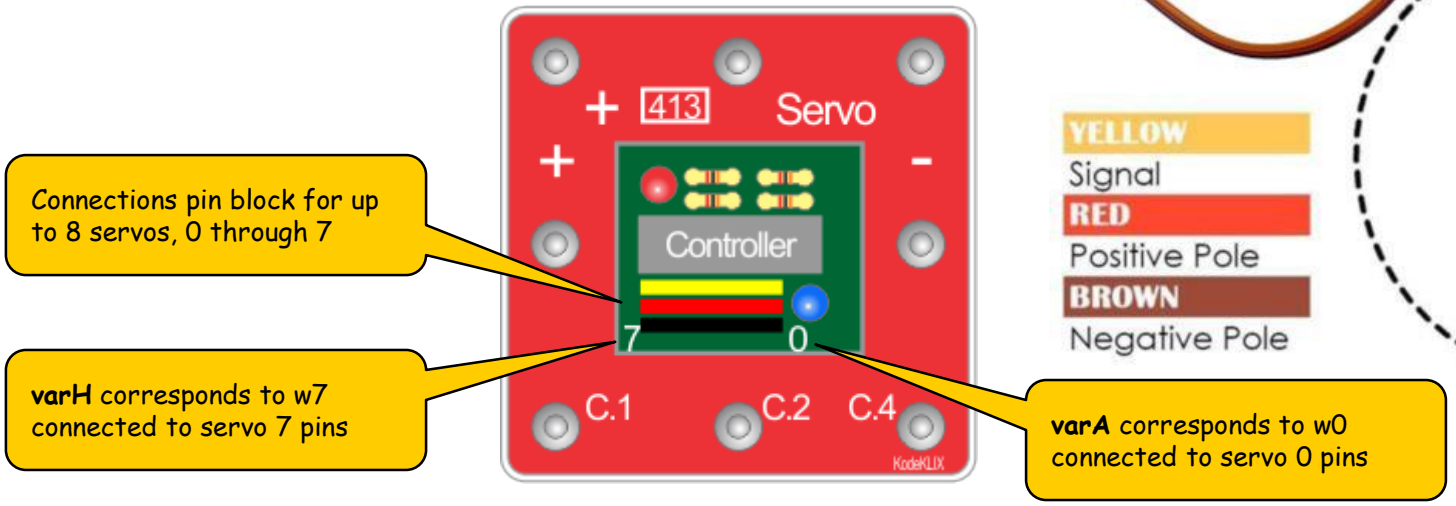




Connecting to the Module

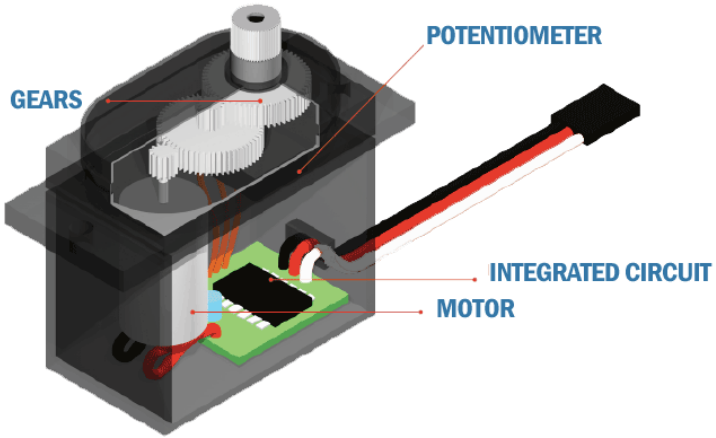
- Regardless of the servo type, they nearly all come with three (3) wires (see table)

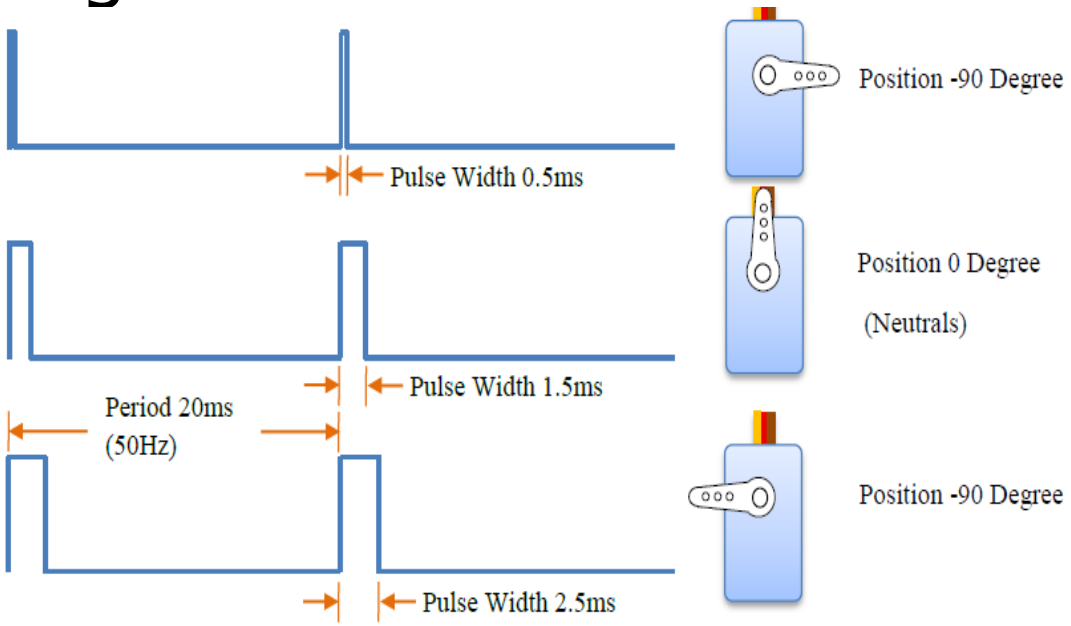
Wire	Purpose	Type 1	Type 2
Signal	Data	Yellow	White
Positive	+V, Power	Red	Red
Negative	Ground	Brown	Black



More about Servo Controls...

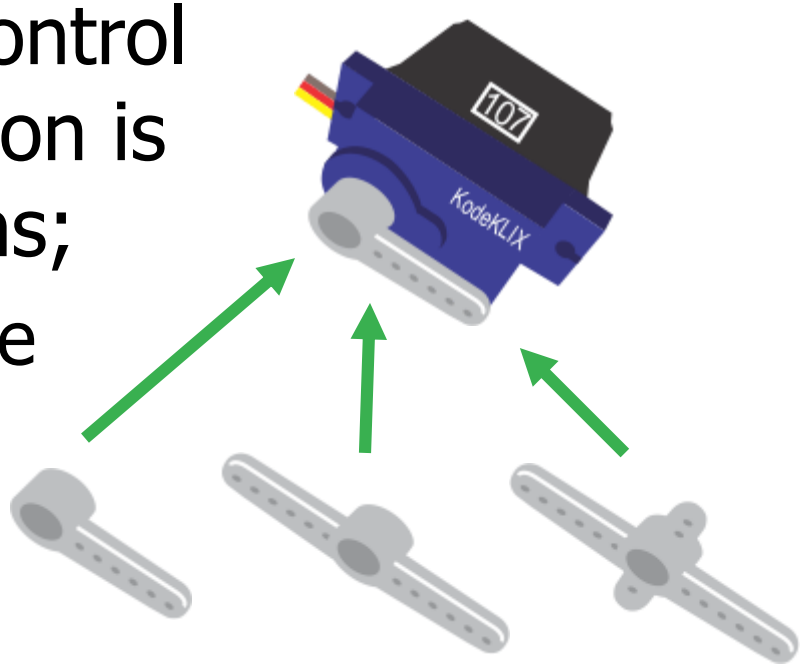
- Inside the servo unit is a small computer that translates SERVO commands pulses into motor control signals
- Giving the servo the wrong pulse signal could make it lose control!

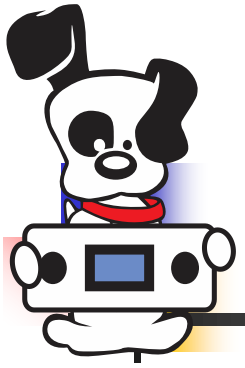




Servo Attachments…

- Three servo arms are provided in the kit
- The arms are held in place by a screw
- The different arms control how the servo's motion is translated into actions;
  - Mount directly to the swing arm, or
  - Connect via a paperclip/wire for push-pull control





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Coding for Young Engineers

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