Description

- Modular bracket-based robot construction kit
- Construct five different robots
- Includes FlowBotics Studio V2 software
- Programmable in Arduino
- Durable metal brackets
- PS2 / Bluetooth / Autonomous control & more!

About the Servo Erector Set V1.1

Think of the Lynxmotion series of servo brackets as a modular building set for servos. These components are extremely versatile, making virtually any mechanical arrangement possible. It's now possible to build custom robots to your specifications! The aluminum brackets are available in black anodized aluminum and when there is need for plastic, the parts are in durable black Lexan. Ball bearings at each degree of freedom provide for precise, low friction movement. The tubing, hubs and hub connectors are precision fit and really expand what is possible to build. They are made in the USA from high quality aluminum alloy. Unlike LEGO Mindstorms and many other modular robotic building kits, the Lynxmotion Servo Erector Set (SES) is bordering custom robotics as it allows you to integrate third party sensors and products.

Program It!

Included with the SES kit is the new FlowBotics Studio (which itself includes the full version of the popular FlowStone software valued at $250!). Flowbotics Studio is an easy to use graphical, Windows - based program for programming and controlling anything you build without the need to create lines of code. FlowBotics Studio interacts directly with the SSC-32U servo controller via Bluetooth (no need for the BotBoarduino), off-loading all of the higher level mathematics to the computer. There is also a visual representation of each of the five sample robots making it easier to position the servos for each sequence.

How Does it Work?

You can build an entire assembly using just the bracket components, then populate the assembly with servos using only two screws for the servo horn, and four 3mm screws, washers and nuts to secure the servo body to the bracket, which make for a very durable joint able to withstand heavy loads. This makes it surprisingly quick and easy to design and build rugged assemblies. Replacing or swapping a servo is effortless, as the rest of the assembly doesn't need to be taken apart. Configure the servos so they are properly oriented using the FlowBotics Studio software, then watch as you drag each component on the screen and the robot follows in real time! Load sample code to get the robot up and running using the PS2 controller.

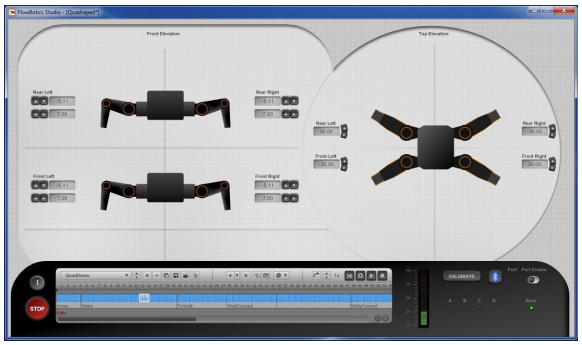
What Can You Make?

AL5D Robotic Arm

The AL5D robotic arm delivers fast, accurate, and repeatable movement. The robot features: base rotation, single plane shoulder, elbow, wrist motion, a functional gripper, and optional wrist rotate. The AL5D robotic arm is an affordable system with a time tested rock solid design that will last and last. Everything needed to assemble and operate the robot is included in the kit and accessories such as a rotating wrist or vacuum gripper are sold separately.

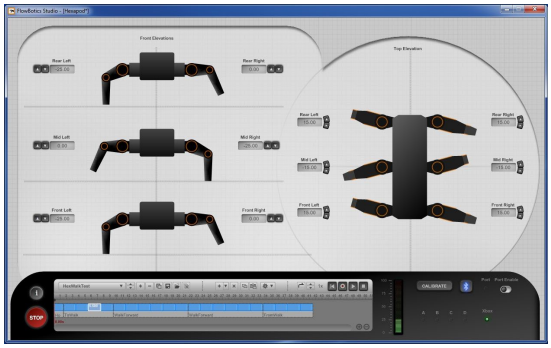
SQ3 Symmetric Quadruped Robot

The SQ3 is a 3DoF per leg quadruped robot with a symmetric body design. The robot's symmetry makes this a very unique quadruped walker. The three DOF (degree of freedom) leg design provides the flexibility required to walk in any direction as well as body roll! The robot uses eight HS-645MG servos along with four HS-422 servos. The SES kit includes everything you need to make a functional robot.



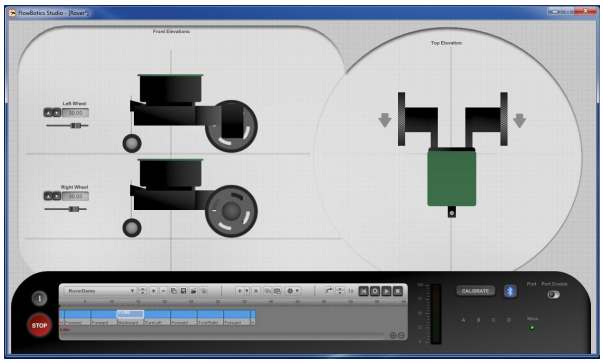
MH2 Hexapod Robot

The MH2 hexapod robot is designed around a simple mechanical leg design with all metal brackets. This leg design minimizes the number of parts required to make a two DOF (degree of freedom) leg and allows this robot to be steered like a tank. Forward, reverse and in place turning is supported. The robot uses standard sized Hitec servos for the legs. The combo kit includes everything you need to make a functional robot.



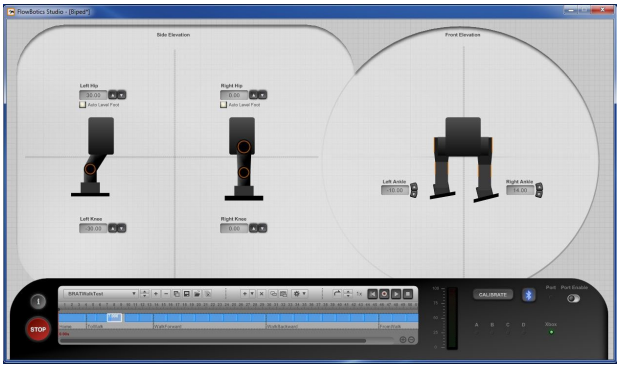
2WD1 Rover

The Lynxmotion Aluminum 2WD Servo Robot Kit is a robust, modifiable, and expandable chassis for your RC or autonomous robot experimentation. By utilizing plastic wheels with rubber rim, robot has excellent traction. Using our small 6V NiMH battery pack and the BotBoarduino means there is plenty of room for additional sensors and electronics. Add the IR distance sensor to the front of rear of the robot to perform basic obstacle detection.



BRAT Walking Robot

BRAT stands for Bipedal Robotic Articulating Transport. The robot is a 6 servo biped walker featuring three degrees of freedom (DOF) per leg. The robot can walk forward or backwards and turn in place left or right with variable speed. It can even do lots of Robo-One style acrobatic moves. Our combo kits include everything needed to make an operational robot. The electronics are mounted as a "backpack". Once you understand the principles, you can modify the legs to include additional degrees of freedom (such as hip rotation) or more complex motion.



What's Included

These are the main components included with the SES V1.1 Kit:

Power
The kit includes one 6V, 2800mAh NiMh battery pack and corresponding universal charger. The battery tends to last around 15 minutes to 30 minutes depending on the robot and how you use it. In certain cases (such as the AL5D arm and SQ3 quadruped which consume high current, you will need a 9V battery to power the logic. You will also need 4xAAA batteries for the PS2 controller (not included). A wired PS2 controller is sold separately.

Software FlowBotics Studio V2
Included with the SES kit is the new FlowBotics Studio (which itself includes the full version of the popular FlowStone software valued at $250!). Flowbotics Studio is an easy to use graphical, Windows - based program for programming and controlling anything you build without the need to create lines of code. FlowBotics Studio interacts directly with the SSC-32U servo controller via Bluetooth (no need for the BotBoarduino), off-loading all of the higher level mathematics to the computer. There is also a visual representation of each of the five sample robots making it easier

to position the servos for each sequence. All the tools and tutorials are available to help you build upon these samples or create your own from scratch.

Arduino
The BotBoarduino is based on the Arduino Duemilanove microcontroller, which means it can be programmed in Arduino (one of the most popular and easy to use programming languages around)!. There is code available to control each of the five sample robots using the PS2 transmitter / receiver, and once you get used to programming in Arduino, you can explore the code further, and add to it, optimize it and share it with others. Special thanks to all those in the Lynxmotion community who played a part in developing this code. Sample code is available in order to control each of the five robots below using the PS2 controller.

Hitec Servos Brackets & Mounting hardware
Our selection of standard brackets can use most standard size Hitec analog or digital servos. The SES V1.1 includes four HS-422 servos and 8x more powerful HS-645MG standard sized servos. We also include a pair of continuous rotation servos to allow you to make a small wheeled rover. Note that servos from other manufacturers are not guaranteed (nor likely) to fit the SES brackets. Should you want to add to the SES kit, the HS-3xx, 4xx, 5xx, 6xx, 54xx, 56xx, and 59xx servos are verified to fit the standard brackets, providing for a wide range of torques, speeds and prices.

The large servo bracket line can use several Hitec large size normal or digital servos. The SES kit includes one HS-755HB and one HS-805BB quarter-scale servos. The HS-755MG, HS-5745MG and 805MG servos are also verified to fit. Note that servos from other manufacturers will likely not be compatible with these brackets. Although not included with the SES kit, there are also small servo brackets available for a range of micro Hitec servos.

All brackets and hardware are included and allows you to build any of the five robots listed below. Note that only one robot can be built at a time.

Electronics

SSC-32U Servo Controller
This is one of the best servo controllers available. Control up to 32 servos with up to 1uS resolution. The controller includes four analog inputs and bidirectional communication with query commands. Synchronized, or "Group" moves are easy to do, allowing you to more easily create walking gaits (there is even a 12 Servo Hexapod Gait Sequencer built in). There is a USB to serial adapter cable sold separately.

BotBoarduino
The BotBoarduino is an Arduino Duemilanove compatible microcontroller made specifically for the Lynxmotion robots. It's perfect for controlling your small robotic projects. You can store and run programs independently of a computer. You can also hook up the BotBoarduino to a PS2 controller for remote control of your robotic creation.

Bluetooth
The DFRobot Bluetooth Bee wireless module adapts XBEE design. Its compact size and pinout is compatible with XBEE modules which makes it suitable for all kinds of microcontroller systems. Default pairing code is 1234. A USB Bluetooth module is also included.

Lynxmotion PS2 Controller
This 2.4ghz wireless Play Station 2 style controller works perfectly with any of our Bot Board / Basic Atom 28 equipped robots. Up to four of them can be used at the same time. They have a range of 10 meters, more when used outdoors. We are also including a USB to PS2 receiver so the PS2 remote can communicate with the computer, allowing you to control the robots virtually.

Useful Links

Website

- SES assembly guides / manuals and additional information
- Getting Started Guide

Multimedia

https://www.youtube.com/watch?v=nWqmwN9Qlng
https://www.youtube.com/watch?v=v7QaQ2HqlX0
https://www.youtube.com/watch?v=HG16woEyfwA
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