Longbow Hexapod is a high performance 6 legged robot designed for walking over rough terrain. Robot has six legs. Each leg is made up of three NRS-995 17kg/cm torque dual bearing metal gear servo motors. Robot comes with high performance omnidirectional IR remote control and can be upgraded with the wireless RC remote control with the range of 1Km from NEX Robotics.

Robot's motion controller has 18 servo channels to control robot's 6 legs and 2 channels for pan and tilt action of the wireless camera / sensor pod. Motion controller board has eight 10 bit ADC's available in 3 pin headers for easy sensor interface and external interrupt switch. It also has I2C , SPI and TTL UART bus for adding more payloads like wireless receiver, GPS, inertial navigation unit, environmental sensors etc.

Robot is powered by high performance 5000mAh low self discharge NiMH rechargeable battery. Robot comes with intelligent NiMH battery charger, which extends the battery use able life. Robot has separate battery monitoring module to predict battery life.

Robot is shipped fully assembled and ready to use. Robot comes with application examples for remote control and 4 different types of motions in AVR Studio 6. Robot motion control is based on motion control library from NEX Robotics. The documentation CD contains all the manuals, necessary software's and application examples written by using the motion control library files form NEX Robotics.

Longbow Hexapod Robot Longbow Hexapod platform for radiation measurement

Technical Specifications:

- Locomotion: 6 legs. Each leg has 3 servo motors.
- Servo motor: NRS-995 servo motor from NEX Robotics having 17Kg/cm torque, dual ball bearings and metal gears.

- Height: 7cm (Base is on the ground)
- Height: 18.5cm (Standing)
- width: 60cm (All the legs spread out)
- width: 34cm (Standing)
- length: 40cm
- Weight: 2.942gms
- Battery: 6V, 5000mAH low self discharge high performance NiMH rechargeable battery
- Battery Charger: Intelligent battery charger.
- Remote control: Omnidirectional IR remote control

Important: IR remote will not work properly in open sunlight. For outdoor environment RF remote control is recommended.

Robot controller specifications:

- Microcontroller: ATMEGA1284P
- Servo control channels: 18 for six legs and 2 for wireless camera / sensor pod pan and tilt

- ADCs: Eight 10 bit ADCs in 3 pin servo configuration (ADC, 5V and Ground)
- One Interrupt switch
- One I/O switch
- One Reset switch
- One UART
- Omnidirectional remote control receiver
- ISP Port for In System Programming

Programming:
IDE: AVR Studio 6
Demo codes:

1. IR remote control demo code based on motion control library from NEX Robotics
2. Even terrain slow walking code based on motion control library from NEX Robotics
3. Even terrain fast walking code based on motion control library from NEX Robotics
4. Rough terrain slow walking code based on motion control library from NEX Robotics
5. Rough terrain fast walking code based on motion control library from NEX Robotics

Control mode:

1. Fully autonomous
2. IR remote control

Kit contains:

- Longbow robot (fully assembled and ready to use)
- IR remote control
- 6V, 5000mAH low self discharge high performance NiMH rechargeable battery
- Intelligent battery charger

You will also require:

AVR programmer like AVRISP mkII or any other AVR programmer supporting ATMEGA1284P microcontroller
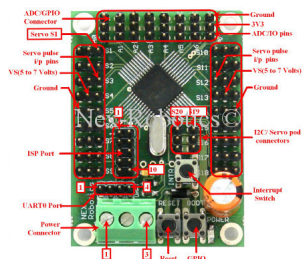
Optional accessories:

Wireless camera pod
Sharp sensor pods
IR Range sensors
Maxbotix EZ4 ultrasonic range sensors GPS module (no software support provided)

Longbow robot from NEX Robotics and robot controller