SUPERDROID ROBOTS™

All-Terrain Robots

Standard 4WD and 6WD ATR Robot Features:

- The wheels are axle mounted and are supported using sealed ball bearings. Each wheel is driven by a independent motor.
- The frame is made of 1/8" thick aluminum to accept our IG42 powerful gear motors. The aluminum frame is fully gusseted adding greater rigidity. The aluminum is all laser cut for an exact fit-up and then hand welded and polished.
- The robot has a ground clearance of about 2 5/16". The width with the wheels is about 23" and the length is about 21.5".
- This is an open chassis design.
- NiMH Battery power

Standard 4WD and 6WD ATR Robot Options:

- ***Roll bar/Utility rack.*** A roll bar can be added to the standard ATR. The roll bar will look similar to the right picture above.
- ***Halogen Lights.*** Halogen lights can be added to the Standard ATR. This option includes the mounting of the lights and the batteries/controls..

Enclosed 4WD ATR Robot Features:

- Wheels are shaft supported with inner and outer race sealed ball bearings
- Wheels are driven with powerful 42mm diameter gear motors with heavy duty chains.
- Robot is enclosed and can be sealed making it water tight.
- Chassis is made from aircraft grade aluminum. The design uses all laser cut parts with mortise and tenon design for precise alignment and mating of the parts. The frame is ribbed and gusseted making it very rigid. Welded construction using TIG and MIG for a solid chassis.
- The robots dimensions are ~22.75" wide and ~20" long (wheel to wheel edge). The robot has a ~2.5" clearance. The height of the robot is ~7.5" from the ground without any cameras, etc.
- NiMH Battery power.

Enclosed 6WD ATR Robot Features:

- Wheels are shaft supported with inner and outer race sealed ball bearings
- Wheels are driven with powerful 42mm diameter gear motors with heavy duty chains.
- Robot is enclosed and can be sealed making it water tight.
- Chassis is made from aircraft grade aluminum. The design uses all laser cut parts with mortise and tenon design for precise alignment and mating of the parts. The frame is ribbed and gusseted making it very rigid. Welded construction using TIG and MIG for a solid chassis.
- The robots dimensions are ~22.75" wide and ~22" long (wheel to wheel edge). The robot has a ~2.5" clearance. The height of the robot is ~7.5" from the ground without any cameras, etc.
- 2x the NiMH Battery power as the 4WD Enclosed ATR Robot.

Enclosed 4WD and 6WD ATR Options:

- ***Assembled and Wired Front Halogen Lights with batteries***. This option includes Halogen lights embedded into the front of the ATR. I includes the batteries, necessary controls, and assembly too.
- ***Assembled, recessed and wired Strobe Lights***. The Strobe lights can be added to the front of the robot or to the roll bar. The option includes the necessary assembly and controls.

- ***Assembled and Mounted Roll Bar***. This option includes an aluminum plate bent over the top of the robot. This option protects the optional camera dome, but will obstruct viewing to the left and right.
- ***PA System with Microphone and Loud Speaker***. This system includes a PA system for broadcasting instructions, etc via a loud speaker. The option also includes a high gain microphone.
- ***Foam Fill Tires Option***. This option includes filling the tires with a urethane foam so the robot can handle higher loads. This option is only needed for heavy loading.
- ***Sand Blasted and Painted***. The ATRs are made from aluminum, so they will not rust. They are generally supplied with a wire brushed look. This option sand blasts the exterior of the chassis and paints it with a satin or flat color of your choice.

Camera Options:

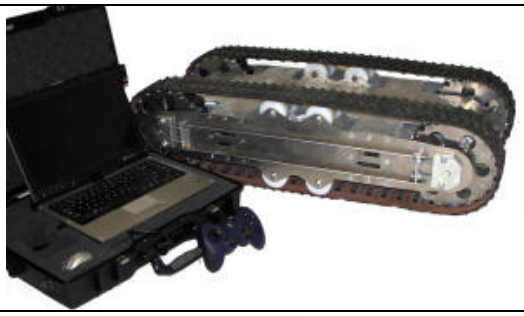
- Video is a very common addition to our robots. The video can be used for surveillance and/or control (to see where you are going).
- Video transmission is tricky and can be effected by several factors such as walls, electrical interference, landscape, other RF interference, etc. We offer many different methods for video transmission. The range (distance) you can achieve is greatly influenced by the above.
- ***Standard PT 2.4GHz Camera System Option***: This option is a Standard Pan and Tilt system that is assembled and mounted on the robot. The system allows about 140 degrees of pan and 90 degrees of tilt. A 2.4GHz 10mW wireless camera is used to transmit the data. A receiver with a high gain antenna is used with the controller to receive the video. The range of these units is 300-500 feet line of site. The unit is FCC approved. Up to 4 video channels can be selected, resulting in up to 4 robots being operable in the same area at the same time. The camera is placed under a clear plastic dome.
- ***360° HD PTZ High Power 2.4GHz Camera System Option***: This option is a heavy duty Pan and Tilt system that has more than 360 degrees of pan and about 50 degrees of tilt. The system also includes a high resolution optical zoom camera that is transmitted with a 2.4GHz high power transmitter. The unit includes a receiver to be used with the control system and a high gain antenna. This system can view 300-1000+ feet line of site and has the best wall penetrating power. Up to 4 video channels can be selected, resulting in up to 4 robots being operable in the same area at the same time. The camera is placed under a clear plastic dome
- ***360° HD PTZ 5.8GHz Camera System Option***: This option is a heavy duty Pan and Tilt system that has more than 360 degrees of pan and about 50 degrees of tilt. The system also includes a high resolution optical zoom camera that is transmitted with a 5.8GHz high power transmitter. The unit includes a receiver to be used with the control system and a high gain antenna. This system can view 300-1000+ feet line of site. The unit is FCC approved. Up to 8 video channels can be selected, resulting in up to 8 robots being operable in the same area at the same time. The camera is placed under a clear plastic dome.
- ***360° HD PTZ Digital 5.8GHz Camera System Option***: This option is a heavy duty Pan and Tilt system that has more than 360 degrees of pan and about 50 degrees of tilt. The system also includes a high resolution optical zoom camera that is transmitted with a digital 5.8GHz high power transmitter. The digital system makes a huge difference in the quality of video and is also encrypted and secure. Analog systems listed above have issues with multipath issues (basically echoes and repeat transmissions) that end up causing its own interference especially when the robot is moving or in urban areas. The system has a 6000ft line of site range and eliminates multipath reflection issues in urban areas. The unit is FCC approved and license free. Multiple channels can be selected, resulting in multiple robots being operable in the same area at the same time. The camera is placed under a clear plastic dome. A Wide chassis is required for this option.
- ***IP PT Camera System Option***: This option is a simple IP camera with pan and tilt angles (pan: 320°; tilt: 60°) for a WiFi Controlled robot only. The camera is not too rugged, so if high vibration or impacts are expected, this is not the best choice. Each robot and camera is assigned its own IP address on a WiFi Network; therefore many robots can be used at same time (to the limit of the WiFi Network). WiFi systems are FCC approved and the range will be that of the WiFi network. Range can be extended with high gain antennas on the router and adding access points or repeaters to the network. The camera is placed under a clear plastic dome. The camera is viewed through a web browser on the network. The pan and tilt is also controlled through the web browser.
- ***360° HD PT System with IP Camera Option***: This option is a simple IP camera with heavy duty pan and tilt for a WiFi Controlled robot only. The pan and tilt system is rugged and has more than 360 degrees of pan and about 50 degrees of tilt. Each robot and camera is assigned its own IP address on a WiFi Network; therefore many robots can be used at same time (to the limit of the WiFi Network). WiFi systems are FCC approved and the range will be that of the WiFi network. Range can be extended with high gain antennas on the router and adding access points or repeaters to the network. The camera is placed under a clear plastic dome. . The camera is viewed through a web browser on the network. The pan and tilt is controlled through the custom SuperDroid Robots Program using the mouse or gamepad controller. A Wide chassis is required for this option.
- ***360° HD PT System with Zoom Camera, 3 Pinhole Cameras, and Video Server Option***: This option includes a high resolution optical zoom camera with heavy duty pan and tilt. It also includes 3 Pinhole Cameras that can mounted on the front, side, and or rear of the robot. The four cameras are fed to a Video server. The IP video server serves the four camera images over the WiFi Network. This system is for a WiFi Controlled robot only. The pan and tilt system is rugged and has more than 360 degrees of pan and about 50 degrees of tilt. Each robot and camera is assigned its own IP address on a WiFi Network; therefore many robots can be used at same time (to the limit of the WiFi Network). WiFi systems are FCC approved and the range will be that of the WiFi network. Range can be extended with high gain antennas on the router and adding access points or repeaters to the network. The zoom camera with pan and tilt is placed under a clear plastic dome. . The cameras are viewed through a web browser on the network. The pan and tilt is controlled through the custom SuperDroid Robots Program using the mouse or gamepad controller. A Wide chassis is required for this option.
- ***Scissor Lift system Option***: This can be used with any above camera option. The scissor lift is driven by and gear motor, and jack screws lifting the camera system into the air. The 18in base scissor lift will lift the camera 6ft. The system includes all the electronics, assembly, and limit switches. The scissor lift is controlled through the custom SuperDroid Robots Program using the mouse or gamepad controller.
- ***Camera Boom with IP camera***: This option has a base that rotates 360+ degrees. The two section arm folds flat, and raises the camera. The camera booms to a height of four feet. The end of the arm is equipped with a camera that has more than 90 degrees of tilt allowing the robot to look straight down and up about 20 degrees when the shoulder is boomed up. When the arm is collapsed, the camera can tilt to look up or about 20 degrees down. The swivel base, two section shoulder, and wrist all have position feedback so it can drive to memorized positions. An IP camera is mounted to the camera boom. The camera boom is controlled through the custom SuperDroid Robots Program using the mouse or gamepad controller.

		
Wide HD2 with 360 high resolution camera system	4WD ATR with scissor lift system	6WD ATR with camera boom

Control Options:

- The robot can be driven by a simple RC system, one of our custom controllers, or a PC/Laptop.
- The base robot does not come with a controller onboard the robot. The systems below add the controller in the robot to receive data from the controller and control the robot.
- The control systems are custom tailored to the robot.

RC Controller Option: The most cost effective control method is using a simple 72MHz or 75MHz RC controller. This method of control is one way. (Control data is sent to the robot, no data is returned to the user (such as battery voltages, sensor data, etc.)). We recommend using a digital Radio such as our PCM radios. Under optimum conditions the control of the robot using this system is about 200yards line of site. A 2.4GHz RC frequency hopping radio can also be used, which has better range then the 72&75MHza systems and a much shorter antenna system. We have tested a 2.4GHz system and we were not able to drive it out of range (the robot was so far away we could not see it anymore). This test was done with many wireless routers, phones, etc in the area. If using video, the monitor, battery and video receiver are mounted on the RC transmitter. The picture is a simple 4 channel radio with a 3" LCD mounted on it. 7" LCDs can be mounted on the radios too.	
Game Pad Controller Option: Game pad controllers utilize two X-Y analog joysticks for driving the robot and controlling the camera pan, and tilt. It also has 15 function buttons for controlling things like camera zoom, lights, etc. The game pad is a PS2 controller that is connected to a custom circuit board with an onboard microcontroller that reads the PS commands and sends serial data. The serial data is sent to a belt worn wireless 2.4GHz 900MHz FCC approved transceiver, which relays the data to the robot. The data is 2-way. A LCD provides status of the robot and also operates the rumble effect on low voltage, etc. The belt worn 2.4GHz wireless data modem can control the robot at about 300+ feet. A 900MHz 100mW system can operate about ½ mile and the 900MHz 1W system can operate beyond a mile line of site and will work through multiple walls. If using video, the video and audio are received from a belt worn receiver and sent to the mounted 3" or 7" LCD.	

Custom Handheld Controller: Another option is a custom handheld all-in-one unit that has a battery, data transceiver, video and audio receiver all built into the unit with a 7" LCD. Two industrial grade X-Y analog joysticks control the drive and camera pan and tilt. There is a knob for controlling the camera zoom. There are also function buttons for setting up the robots preferences, turning lights on and off, etc. The data LCD displays the robots data, such as battery voltage, sensor information etc. This controller can be customized to meet your specific needs. The data is 2-way and all sensor information and battery status, etc is displayed on the LCD. The built in wireless 900MHz 1W FCC approved data modem can control the robot beyond a mile line of site and will work through multiple walls. The unit has a built in video receiver and 7" LCD for viewing the camera.	
WiFi Controller Option: The robots can be controlled via a Wi-Fi connection so you can use your laptop to control the robot from a remote location. We provide a program so all the driving and control of the robot is done using the using the robot control program using your mouse or a game pad controller. We have also provided a Wi-Fi Control system that accepts a RC over-ride for local control. Using the same WiFi connection an IP camera options can be viewed and controlled.	
WiFi Controller Option: This option uses a WiFi connection similar to the one above, but utilizes a Ultra-Compact PC. The Color touch screen LCD can be used to control the robot and view the IP camera(s). The PC is mounted in a custom bracket with a gamepad controller mounted to it. We provide a program so all the driving and control of the robot is done using the using the robot control program using the game pad controller and touch screen LCD. Using the same WiFi connection an IP camera options can be viewed and controlled.	

LCD Options:

- The LCDs are intended for the controllers listed above.
- They receive the video signal via the receivers from the camera systems listed above.
- The systems include a battery and mounting the LCD to the controller.
- The LCD Options offered are:
  - ***3" LCD, battery, wiring, and mounting to controller***. (Used with the RC controller or gamepad controller)
  - ***7" LCD, battery, wiring, and mounting to controller***. (Used with the RC controller or gamepad controller)
  - ***7" LCD, DVR, battery, wiring, and mounting to the controller***. This system includes a 40GB disc DVR for recording the robots video. (Not needed with WiFi Controller)
  - ***Upgrade 7" LCD on handheld controller to DVR***. This option is only used for the handheld controller that has a built in 7" LCD. It upgrades the LCD to a DVR LCD (Not needed with WiFi Controller)