



**Sun Microsystems SunSPOT Device**  
Interfaces to the PIC and sensors.  
All logic and AI is performed in the SunSPOT.

**Power Supply**  
The power supply consists of a 5V voltage regulator for the ICs' and microcontrollers and a 6V voltage regulator for the motors' power

**Parallax PING))) Sonar Sensor**  
Uses ultrasonic sound waves to determine the distance to an object in front of it.

**HiTech Servo**  
RC Servo used to rotate the ping sensor left and right.

**38kHz IR Receiver Module**  
Demodulates a 38kHz IR signal. Used for locating the iRobot roomba base station.

**PIC18F452 Microcontroller**  
Interfaces with the Pololu Dual Serial Motor Controller and receives commands from the SunSPOT for movement commands. Also monitors the wheel odometers, bump sensor.

**SunSPOT Interface Board**  
Custom made PCB for connecting the SunSPOT to the sensors, servo, and serial connection to PIC. This board holds the low pass filters for the IR sensors.

**Pololu Dual Serial Motor Controller**  
Receives serial commands from the PIC to move the left and right motors at a given speed.

**PIC18F452 Microcontroller**  
Interfaces with the Pololu Dual Serial Motor Controller and receives commands from the SunSPOT for movement commands. Also monitors the wheel odometers, bump sensor.

**Flyback Diodes**  
Allow extra voltages induced by the motors turning to flow back into the battery rather than the entire circuit.

**IR Rangers**  
Uses IR emitter and a CCD to determine distance to an object.

**Bump Sensor**  
Two switches are used to detect if the bot runs into something.