BASIC PARTS OF A ROBOT

This post is a continuation of my previous post which dealt with Robotics and Automation. Here you get to know the different components in brief like Locomotion, Actuators, Sensors, Signal Processing, Control System, etc.
Well, for long I was in my shelter. Finally I decided to come out of it and write something for the beginners out there. So this article is dedicated to the robotics enthusiasts spread all over the world!

So, I guess you all are familiar with robots. If not, then you can read the post in which I have discussed the basics of robotics and automation.

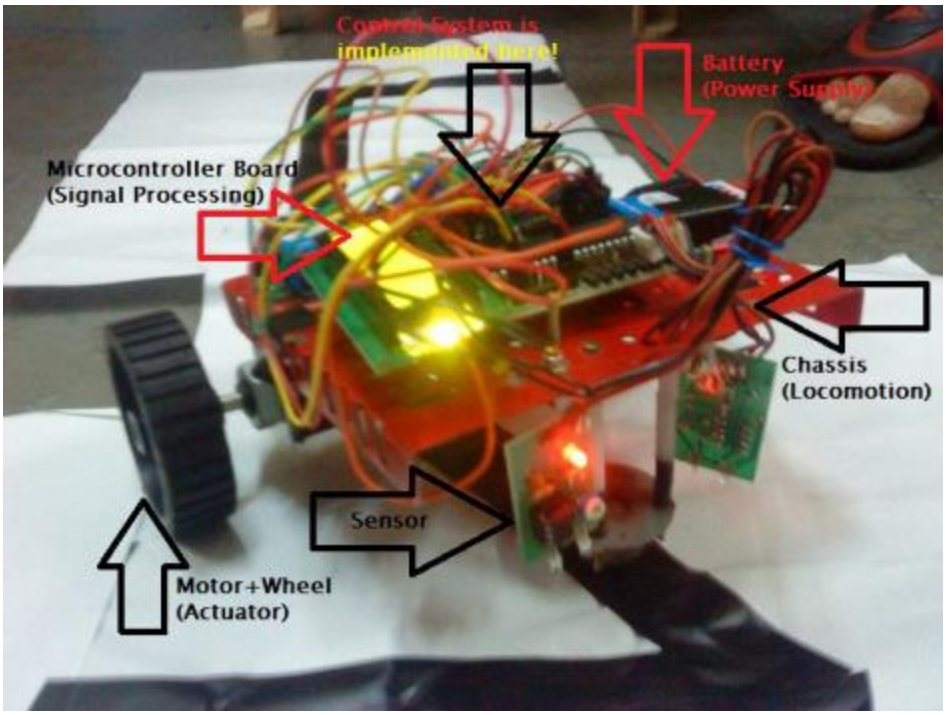
Basic Parts of a Robot

Getting straight to the point, for a robot to be mobile (which can move), it should have some basic systems as mentioned below.

- **Locomotion System** – This system defines how the robot moves. Whether it's translatory motion, rotatory motion, etc. Using this system, you can make your robot move forward, backward, right, left, climb up/down, etc. To accomplish this, we need devices which convert electrical energy into mechanical energy. Such devices are called actuators and the most popular actuator is the DC Motor.
- **Power Supply System** – For a robot to work, we need a power supply. It acts as food to the robot. Unless you feed your robot, it cannot work! Thus, we need to provide a power supply for that. For robotic applications (in fact most major applications), we need DC supply (usually 5V, 9V, 12V DC, sometimes goes as high as 18V, 24V, 36V, etc. as per your requirement). The best way for this is to use a battery (as it provides DC supply directly) or use an SMPS/Eliminator to convert AC to DC and then use it. But voltage

is not the only thing that matters while choosing a proper supply. Your power source should also be able to supply sufficient current to drive all the loads connected to it, directly or indirectly.

- **Actuator System** – As described above, actuators are devices which bring about the locomotion of the robot. There are many actuators used like DC Motors, Stepper Motors, Servo Motors, etc. The way they are connected together, their circuit diagram, their location, orientation, position, etc. everything comes under Actuator System.
- **Sensor System** – In order for the robot to interact with the physical world, we need to introduce sensors (which can measure physical parameters like temperature, pressure, heat, radio waves, IR waves, etc). These sensor systems provide a feedback from the real world to the digital world (embedded electronics), which are processed and the robot takes the decision accordingly.
- **Signal Processing System** – The data from the sensors and other electrical and digital signals need to be processed, so that the robot analyzes the situation and makes its moves. For this, we introduce electronic components to process the signals. The components can be any analog/digital device, or even a microcontroller.
- **Control System** – This is the major governing system of the robot. Every system that is present inside the robot and functioning can be represented in form of a control system (open-loop and closed-loop).



Basic Parts of a Robot – All the parts mentioned above are marked

This is just an introductory text. For more, you can surf my blog and search the net. **You can subscribe to my blog and/or grab the RSS Feeds to stay updated with me! :) And don't forget to comment below for any kind of queries, suggestion, criticism, etc!**

Source: http://maxembedded.wordpress.com/2012/06/18/basic-parts-of-a-robot/