Grass Cutter Robot

Introduction

In this project we present a grass cutter robot, powered with solar energy and able to operate just with the clean energy from the sun; this one is a great difference from the commercial projects having a robot in need of a charging station connected to the electrical grid. When designing a grass cutter robot powered by solar energy, it is essential that most of the energy comes from the sun, and of course the ultimate result would be obtained if solar energy were enough to completely power up the robot: this one is however an objective that will be very difficult to obtain, given the low efficiency of existing solar panels. In our project the whole surface of the robot is destined to solar panels, acting also as a cover, only the sides have been left free, and anyway they wouldn't play a decisive role in supplying energy.

We have to consider that solar power will not always be available, as many garden areas are often in shade, or anyway not directly hit by the sun, so we have to take into account considerable losses of power. These losses can be made up only if the robot has an accumulator capable of supplying energy when it is lacking from the sun. In this situation the battery works as a buffer, accumulating energy when it is plenty, and supplying it when the robot, on the contrary, is in shade

Following is the block diagram of Grass cutter robot

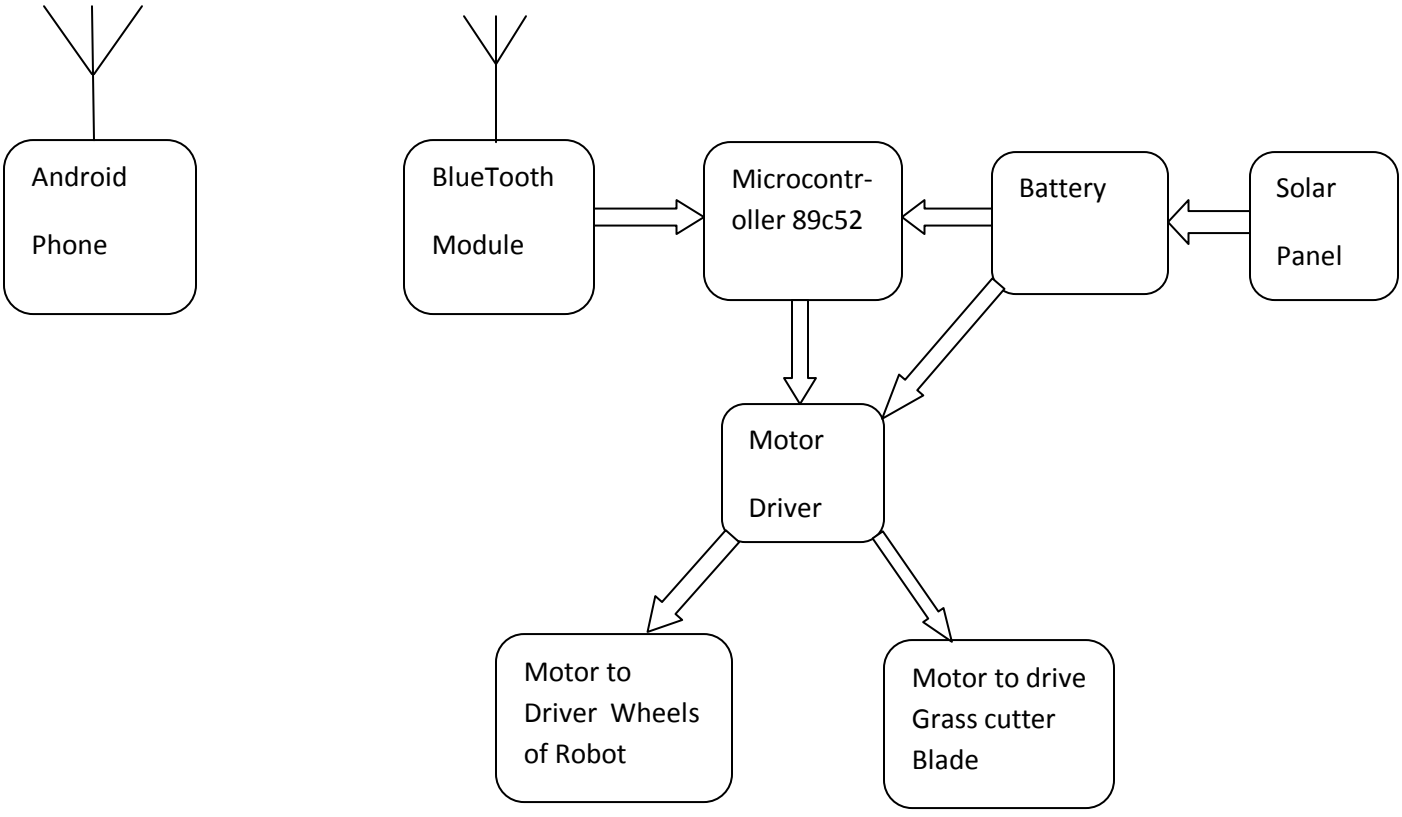

Figure shows block diagram of solar based grass cutter robot. The robot is getting control by android phone. By using android phone we can transfer data to Bluetooth module. The data from Bluetooth module is received by controller and take action according to data. Controller controls the motor revolution as per data. The robot will get the power from solar panel. When ample sun energy is available it is stored in battery. When sun energy is not available, stored energy in the battery is used.