Hexa-pod Robot

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Project Aim

Building a Hexapod ant robot using that is controlled by smartphone via Bluetooth

Project description:

1. Abilities of the robot
   (a) It can move in different directions
   (b) It can tilt its head
   (c) It can hold objects using its mandible
2. Hardwares to be used
   (a) Necessary designed parts can be 3D printed
   (b) Servos like MG996R,SG90 for controlling joints
   (c) Arduino board
   (d) HC-SR04 Ultrasonic sensor for detecting objects
   (e) HC-05 Bluetooth Module
   (f) DC-DC buck Converter for stepping down voltage as necessary
   (g) Obviously Batteries
3. Approach
   (a) Each leg of ant will contain three servos to give necessary degrees of freedom.And head will contain two servos for tilting of head and to give mandible the grabbing ability
   (b) Hexapod's movement can be programmed in various ways like using concepts such as forward kinematics,reverse kinematics.
   (c) For powering the robot battery which has a voltage of around 12V can be used.Because these batteries can handle higher amount of current draw, so they can handle the high current drawn by all the servos.
   (d) However, the servos operating voltage is limited from 4.8 to 7.2V, which means there is a need to use a DC-DC buck converter to convert the 12V to 5V.
   (e) Bluetooth is used to transfer messages from phone app to the hexapod
   (f) A detailed schematic diagram is given below:

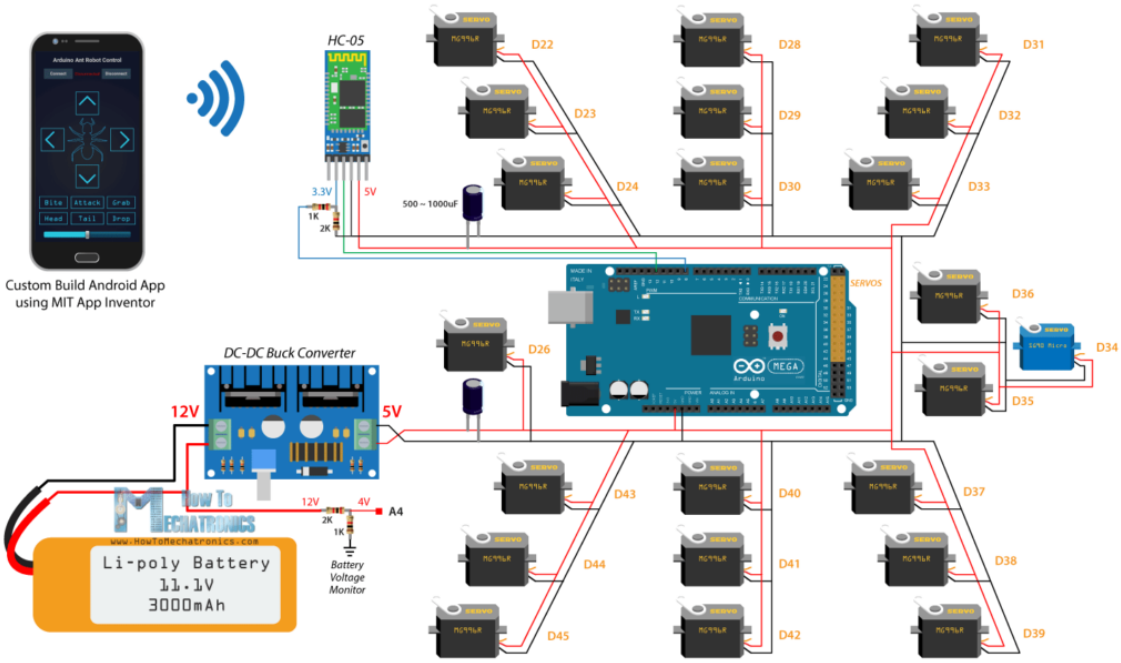

Figure 1: SchematicDiagram

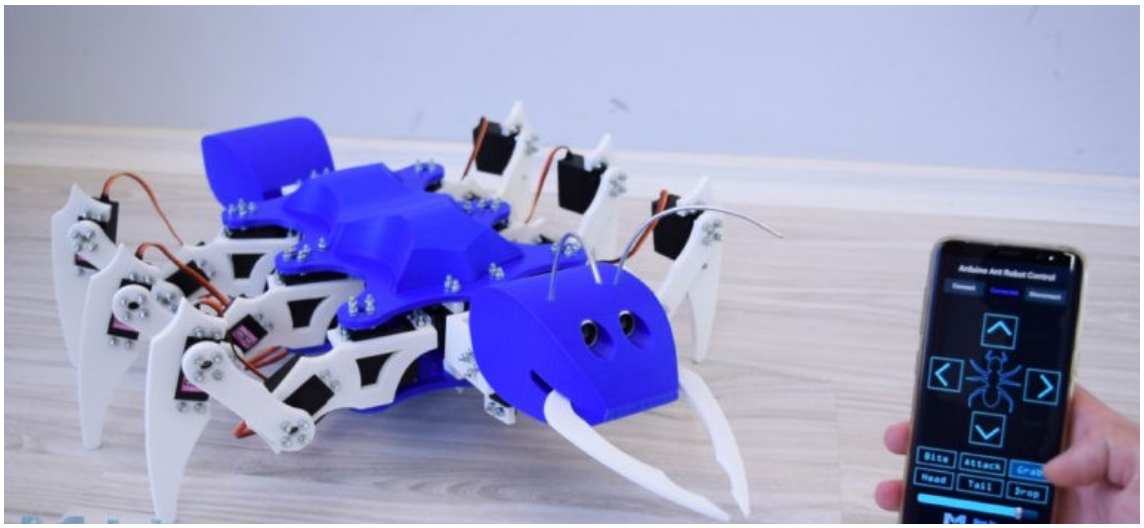

Figure 2: The bot