

Humanoid Robot

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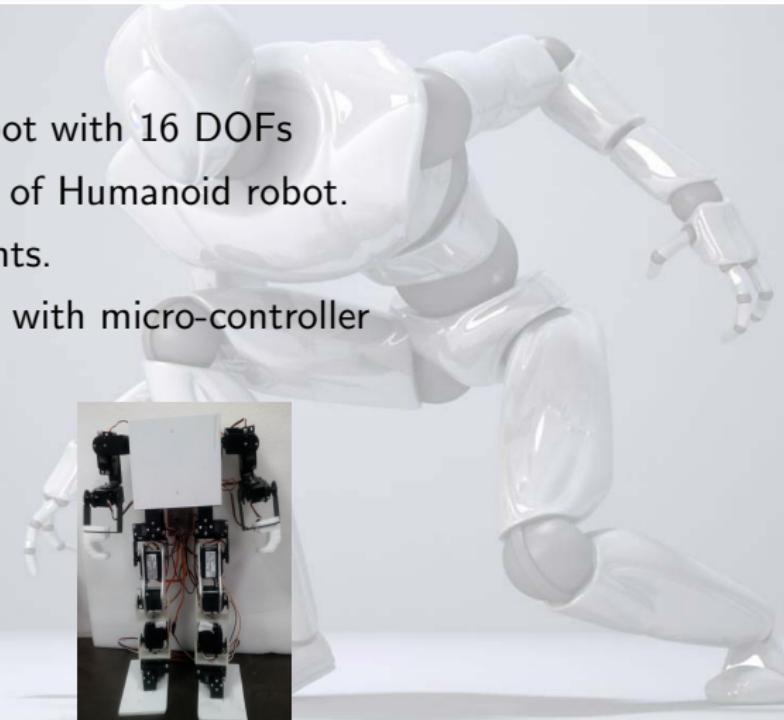
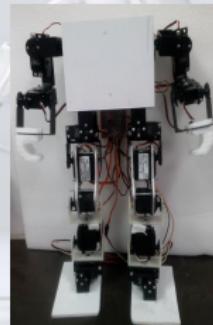
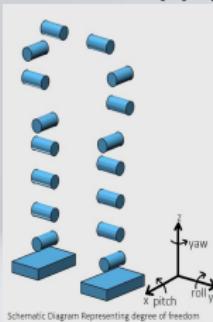
Outline

- 1 Objective of the work
- 2 Design
- 3 Completion
- 4 Results
- 5 Features & bugs
- 6 Future Work
- 7 B.E project idea!

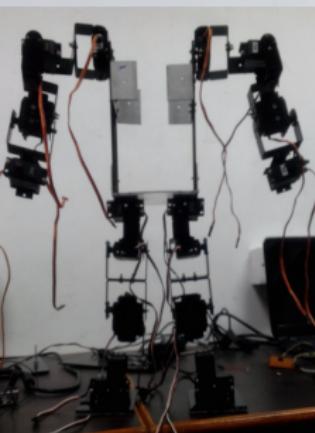


Objective of the work

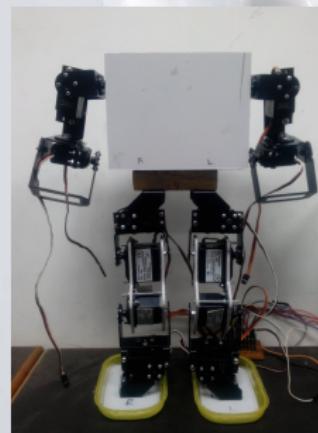
- Humanoid Robot with 16 DOFs
- Basic concepts of Humanoid robot.
- Basic movements.
- Servo interface with micro-controller
- Power supply.



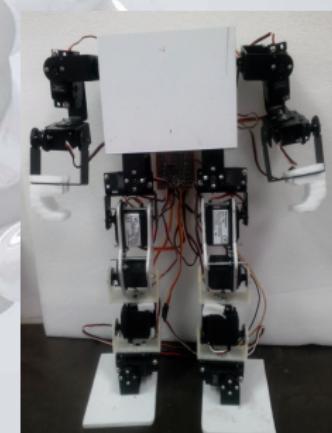
Design



- ① Size
- ② Bracket
- ③ L clamp



- ① Walk
- ② Feet
- ③ Angled clamp



- ① Human walk
- ② Robust
- ③ Flat feet

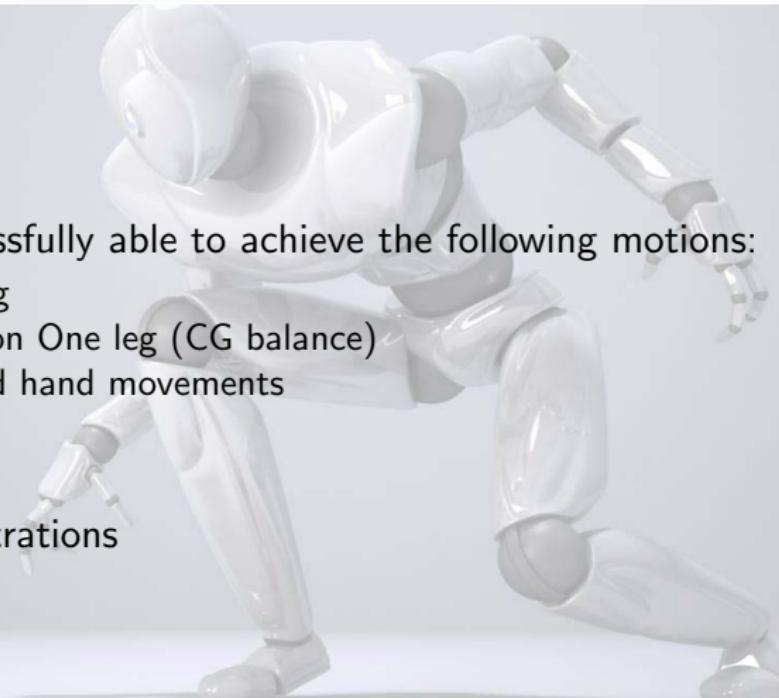


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- ✓ Humanoid Robot with 16 DOFs was successfully constructed.
 - ✓ Servo motors were interfaced with ATMEGA 640
 - ✓ Basic concepts of Humanoid robot were studied.
 - ✓ Basic movements were programmed and tested successfully.
 - ✓ Suitable power supply was designed.



Results

- We were successfully able to achieve the following motions:
 - ✓ Basic Swing
 - ✓ Balancing on One leg (CG balance)
 - ✓ Kicking and hand movements
 - ✓ Sit-ups
 - ✓ Walking
- Video Demonstrations



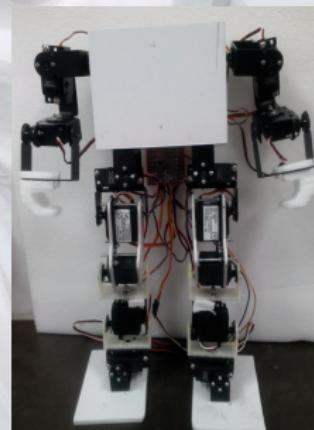
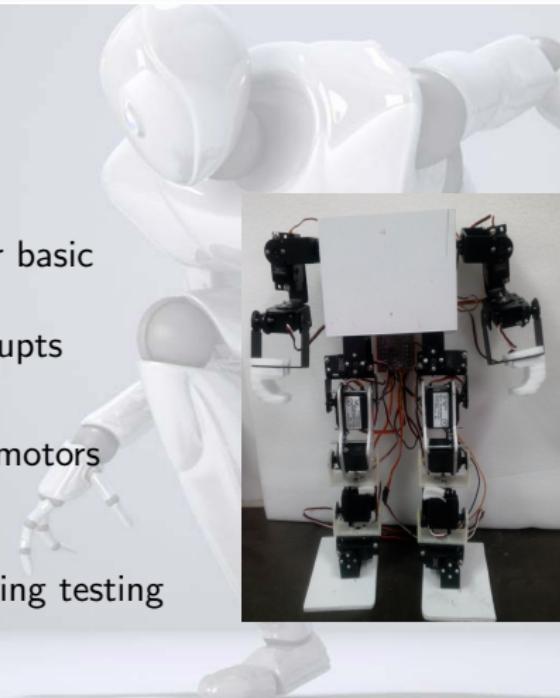
Features & bugs

- Features:

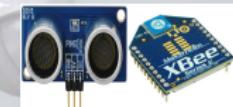
- Robust
- Walking and other basic movements
- PWM using interrupts

- Bugs:

- Metal gear Servo motors
- Battery cannot be accommodated
- Servo jittering during testing phase
- Servo plastic flaps



Future Work

- Interfacing IMU. 
- Building a GUI for controlling the robot autonomously.
- Interfacing camera along with a smart processor like raspberry pi or a beagle board. 
- Interfacing various sensors like ultrasonic sensors for distance calculation, Xbee for wireless communication. 
- Interfacing with modules like Kinect to depict the human motion and many more.



B.E project idea!

- A four legged Robot.
- Micro-quadcopter for surveillance
- Interfacing IMU.
- Interfacing camera along with a smart processor like raspberry pi with existing Humanoid.



End

Thank you

