OBSTACLE AVOIDING LEGGED BOT

MAIN IDEA:

Our project is inspired from bats and aims at building an autonomous legged bot which will be able to detect and avoid obstacles coming in its path. We have decided to make legged bot as making wheeled bot is relatively easy and we have done the similar in line follower. The bot will walk like an animal.

The ultrasonic range finder is used to measure the distance of the obstacle (if any) from the bot. If it is less than some threshold value, the servo motor rotates the bot 180 degrees and taking the help of the sensor, finds a direction where there is no obstacle. The bot finally chooses one of the suitable paths (say, for which the rotation required is the least).

WHY DO WE NEED SUCH A DEVICE :

Such a bot is able to detect the surrounding and find its way on its own. Legged bot can also move in regions where wheeled bot may not be able to move.

PLAN OF ACTION :

1st WEEK: Learning working of electronic components and gathering resources and designing the bot.

2nd WEEK: Fabrication of the bot and working with the micro-controller.

NOTE: We will be keeping the appropriate documentation throughout the project.

GOAL for ITSP :

Make a prototype legged bot robot that is autonomous and avoid obstacles.

COMPONENTS REQUIRED :

1. Servo motors
2. Microcontroller
3. Battery
4. 7805 ICs + 7806 ICs + 7809 ICs
5. General purpose PCB
6. Acrylic sheets
7. L293D
8. Connectors and jumper wires + switch
9. Berg strips, screw, bolts, nuts.
10. Encoders

11. Ultrasonic range finder
12. And infinitely many small electric components

- ESTIMATED COST : 5000 Rs.
- LEARNING OBJECTIVES :
  - We will be learning applications of coding
  - 1st time of building legged bot
  - Learning of working of microcontroller
  - Working with circuits and PCB's.
  - Understanding the fundamental of finding range with ultrasonic waves.
- FURTHER ADVANCEMENT WHICH CAN BE DONE IN BOT :
  - Camera can be installed for visuals of remote places
  - Can be used for spying

Wall climbing bot

3rd june-5th june : Testing of previous year robot. See for modifications.

5th june-15th june: Make new design, check for sideways movement, buy components.

15th-22nd june:Testing different designs.

22nd-25th june:Modify design.

25th-30th june:finalise and implementing final design.

Components:

Chasis 1	70/-
sliders 1	80/-
d.c motors 6	800-900/-
castor wheel 3	150/-
suction cups 5-6	50/-
syringes 5-6	100/-
Li-Po battery 1	1000/-

tubes	30/-

The main idea behind this project is to find a mechanism good enough to make a bot climb a wall.