Basic Electronics Project Proposal

SOUND FOLLOWING ROBOT

MOTIVATION:

Robotics is a progressive field which is evolving everyday. We wanted to build a robot that helps us gain experience in both hardware and software, so we decided to work on the sound following robot.

OVERVIEW:

This project is an experimental approach towards a higher level design of locating a sound source in an environment where finding objects is not possible due to poor conditions such as unavailability of light. Thus, using geometry, we can understand the angular direction of sound waves and using timing, we can analytically decide the exact direction in which the sound wave exists with respect to the robot itself. It will detect sound and move towards the source of sound as much as possible.

COMPONENTS REQUIRED:

Below is the list of components we have planned* on using in the project:

- Arduino Uno
- Resistors
- Capacitors
- Battery (7-12 V)

- Motors
- Bot Chassis
- Wheels
- Microphones (Sound Sensors)
- Voltage Regulators (IC 7805)

*And other basic components which may be used based on the necessities of the project

DESCRIPTION:

It is a basic robot which moves around with the help of wheels, built on a chassis. It is intended to be powered using batteries.

Motors and sensors will be installed on the robot to detect any sources of sound around the robot and move in the direction of sound with respect to the robot.

With the help of Arduino, the robot will be programmed such that it is able to detect the proximity and direction of sound and rotates its motor. When the motors rotate, the sensors find the direction of sound with increased accuracy and move accordingly.
When a sound is produced, the robot moves towards the sound as long as it is able to detect the direction and source of sound.

CONCLUSION AND FUTURE SCOPE:

This is an elementary approach towards building an autonomous robot that can identify the direction of incoming sound waves and can follow the sound in the same direction. A higher version of the robot could be implemented in applications like Search and

Rescue operations, where it could provide valuable information like the exact location/direction of the lost person/object.

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