**The Ant-Bot**

**Abstract:**

The goal in mind for this project was to create a metal detecting, remote controlled robot which would be able to balance and walk through rough, uneven tract by mimicking the rhythmic movement of an ant.

**Structure:**

The base was 3D printed and mounted with 18 MG996R servo motors, SBT5333 DC-DC buck converter, Bluetooth module, sonar, 12V-2200mAh lipo battery, metal detector sensor, Arduino mega.

**Mechanism :**

The Ant bot is a hexapod with multiple degrees of freedom in motion. It can reach the desired destination with remote control mechanism from the app. Sonar will notify the controller about any nearby obstacle. Upon detection of any metal or mine, the LED will light up and the controller will be notified.

**Set-up:**

(Autocad ss)

Each leg consists of three parts. The parts were assembled first with servo motors. Each joint had one motor. That’s a total of 18 servo motors. The base had two parts. The lower part was the platform for all the legs. The upper part had the servo horns mounted on it allowing rotational motion to the inner servo of a leg.

Ja ja chobi ase dewar moto parts assembly er

Each joint of the legs provided one degree of freedom. Inner servo (inservo) gave the front and back motion, mid servo (midservo) gave the up-down motion and the outer servo (outservo) gave the inward outward motion for turning left and right. The bot has different functions built for each movement (front, back, left and right). The initial position of each servo was set to be in the middle so that it can get the full access of rotation. The bot doesn’t stay balanced in shut down mode because of its own weight. An initial position function is provided for this purpose, which would keep the bot on a standby position until further command.

Lekha baki nut bolt er size niye ar veroboard er connection niye ar metal sensor er mechanism niye (kemne kaaj kore, koto distance e kaaj kore etc etc)

**Programme:** full programme

**The App interface:** app er chobi

**Applications of The Bot:**

Metal detection mechanism can be used to detect explosive mines in minefields or to find lost metal objects. The bot was designed to work best on rough terrain as the base of the leg has a smooth surface. The base can be roughened up to increase accessibility in smooth floor.

Application er chobi

**Future Aspects:**

The Ant bot can be partially automated and self balancing motion can be added so that the Ant bot can protect itself with precision. Weight-carrying mechanism can be added to safely carry mine or other metal object to where it can be dismantled.

Swarm er kotha likhbi?   
**Limitations**

* Can not crawl on inclined surface
* Will not be able to protect itself from aerial attacks.

**Team Members**

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