**ROVER USING PLUTO X DRONE**

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**OVERVIEW**

We have used the microcontroller of Pluto X drone i.e. Primus X, a battery (5V) and a 3d printed chassis (in which the motors and the tires are already fitted) in building up the project. Then the hardware is assembled as shown the video. Then using the Cygnus IDE we wrote codes to make rover perform the desired functions. The codes are uploaded along with the README file. We wrote codes to make rover perform the following functions.

* Code for manually controlling rover using Pluto X controller (so that it perform all the basic functions for eg. moving forward ,backward turning left, right etc.)
* Code for making rover move autonomously in a circle
* Code for making rover move autonomously in a square
* Code for making rover move in a straight line autonomously so that it hits an obstacle and come back in an upside down position

**Practical Applications of Rover:**

As the Pluto X microcontroller has 20 headed pins it increases the functionality of rover to a great extent. A wide verity of sensors and cameras can be attached to the rover and thus can be used for Surveillance and security purpose (for mapping etc.).It can also be used in underground mines where human interference is dangerous and used in numerous other ways.

Through this project we basically learnt how to code in the Cygnus and how a microcontroller can be used for various purposes. Initially we wrote some codes for landing and takeoff of the Pluto X drone and then and then we switched to rover and wrote some codes for it (already mentioned above)..Overall it as a great learning experience and we would surely want to work more on this project.

**STEPS FOR REPRODUCING THE PROJECT:**

1. For reproducing the project the above mentioned hardware is required.
2. Then Cygnus IDE has to install along with he Pluto X controller.
3. Then the laptop and the phone needs to be connected to the Pluto X Wi-Fi network.
4. Then the codes need to be flashed after building the project on Cygnus.
5. Now switch on the developer mode in the Pluto X comptroller and control the rover manually with the help of the controller.

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