Automated Wall Painting Robot

Overview

The aim of this project is to make a robot that can paint a wall where it can detect obstacles and paint the wall without any Manual help.

It will require a moveable base in which there would a sensor which can detect the starting and end of the wall (or we could feed the details beforehand).

A hand-like of part with which the paint brush/spray will be attached it will move vertically up and down and horizontally. In this a sensor will be attached which will detect any obstacle on the wall and bypass it and continue painting.

Trying to build it from the scratch (basic idea)

From the bottom it has a base consists of four wheels which will make it move accordingly then a stand where the painting components will be mounted, the work will be moving the spray up and down (not sideways), the base will also have a dc motor which will help the bot to move, it will have a battery which will power the whole system, the base will have a microcontroller which will control the motion of the bot and the spray painting hand. It will have a LCD display

Which will give information in digital format. The base will also have a sensor which will monitor and relay the motion of the four wheels. The spray-painting hand will have a IR sensor to detect the obstacles and relay that and the painting will work accordingly.

There is a spray-painting hand already made wall painting machine (Graco Ultra corded airless handheld paint sprayer).

Main Feature of the bot:

1. Precision up to 2cm(can vary) spray painting
   1. Graco Ultra corded airless handheld paint sprayer(Asian paint)
2. Automatic detection of the obstacles
3. A sensor is used to maintain the same color scheme throughout the wall
4. The corner of the wall is not bothered by the bot
   1. A robot hand it to incorporated as if we make the base of a fixed one.
   2. If the bot’s hand could move 360 its much better.
5. It is designed to paint the complete a full side of the wall where obstacles are avoided.
6. Its base is designed to avoid any obstacles on the ground and detect the ending and starting of the wall.

Main painting :

Components in making the hand or slider kind of thing-

1. Sensor to measure the distance of the wall and to find out the obstacles.
2. Paint can holder
3. Pressing the button on the can and stuff
4. If we are using the hand mechanism it would have a lot of freedom and if we are making it with the fixed panel then it will map and work like on x and y axis
5. Base

The base of the robots will be a suitable framework made out suitable metal/alloy which can carry the other components load easily and efficiently (by not making the whole bot too heavy. It primary will have four wheels which will make it mobile the wheels would be connected to a motor which power it to move, also an sensor which will help in collecting and processing the information for motion and maintaining speed, it will take command from the programmed instance whether it has to move or not, hence the base is covered (and if possible make it move sideways).