PROJECT REPORT

Electronic Circuits Lab | Smart Cleaning System

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Introduction

Our project consists of three major independent units:

- Scrap Collection Unit
- Mopping Unit
- Obstacle Detection Unit

Components Used

1. Arduino Uno
2. Motor Sheild (L293D)
3. Water Pump (12 V)
4. Geared Motors
5. Ultrasonic sensors
6. Servo motor

7. Battery holders
8. 9 V battery
9. AA battery
10. Chassis

Functionalities

Scrap Collection Unit – Dust and dirt is drawn up by the vacuum created by this unit. Vacuum is generated by creating pressure difference using a fan inside the suction chamber.

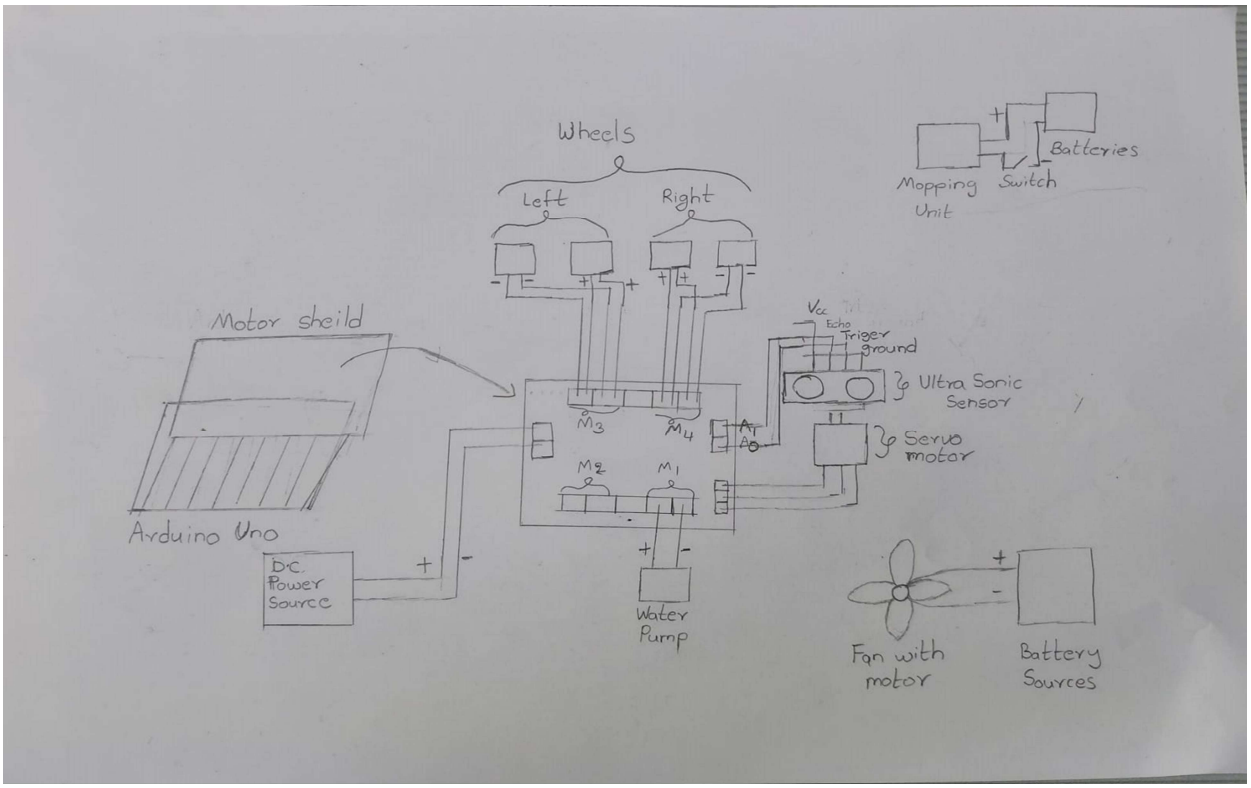
Mopping Unit - Water is sprinkled occasionally by water pump, which is then cleaned by rotating floor mops.

Obstacle Detection Unit – Detects objects in path using ultrasonic sensors and re-routes accordingly.

Problems Faced

- Finding an appropriate power source.
- Dealing with friction generated by moping unit.
- Regulating the flow of water.
- General problems faced during turnings.
- Dealing with the inaccurate readings provided by Ultrasonic sensors.

Circuit Diagram



Future Aspects

- Integrated motion sensors and a well-designed structure.
- Powerful suction unit.