



GROUP NO. 108

SNOOP DOGGY

(It will walk in the house like a dog patrolling his territory)

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Introduction

- In recent years, robotic cleaners have gained major attention in robotics research due to their effectiveness in assisting humans in floor cleaning applications at homes, hotels, restaurants, offices, hospitals, workshops etc.
- Basically, robotic cleaners are distinguished on their cleaning expertise like floor mopping, dry vacuum cleaning etc.
- Each cleaning and operating mechanism of robotic floor cleaners has its own advantages and disadvantages. For example, robots utilizing laser mapping are relatively faster, less time consuming and energy efficient but costly, while obstacle avoidance based robots are relatively time consuming & less energy efficient due to random cleaning but less costly.

Objectives

- To design an autonomous robot that will assist people at home who are too busy for daily or weekly floor cleaning, especially for families with children and elderly.

Societal Impact

- The project will reduce the burden of the daily necessary household work.
- Moreover, it is cost effective and hustle free.

Methodology

- A vacuum cleaner to clear the dust, a mop to swipe the floor and a fan to dry the floor to avoid any kind of accident.
- With the help of ultrasonic sensor and arduino uno we have made the vacuum cleaner automatic, which will detect obstacle and avoid it from collapsing.

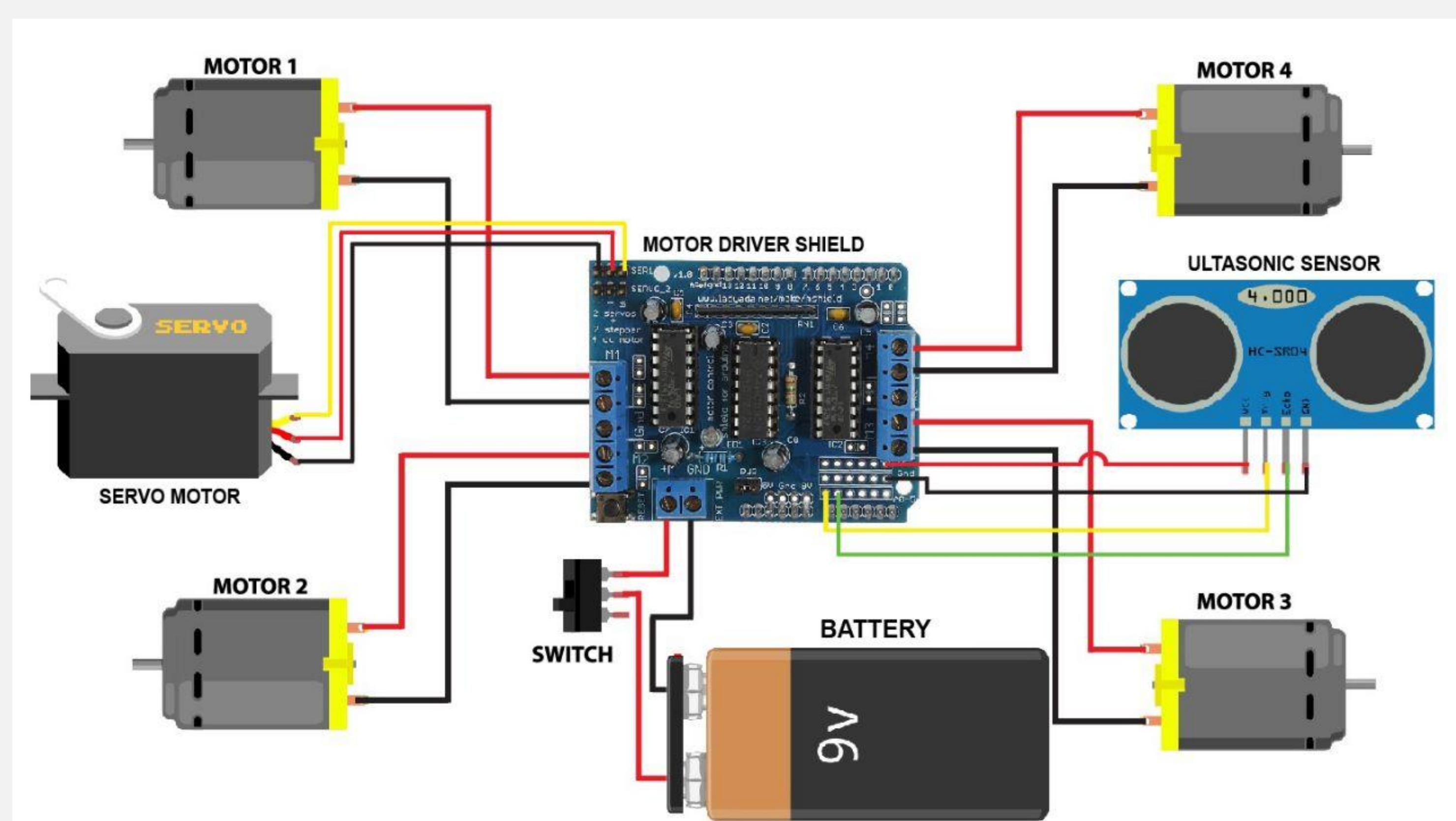


Fig. 1: sample circuit

Experimental Results

- At the front of the cleaner the vacuum is used to draw the dust.
- The mop at the bottom is used to clean it more efficiently.
- the fan at the back is used to dry the patches of water on the floor.

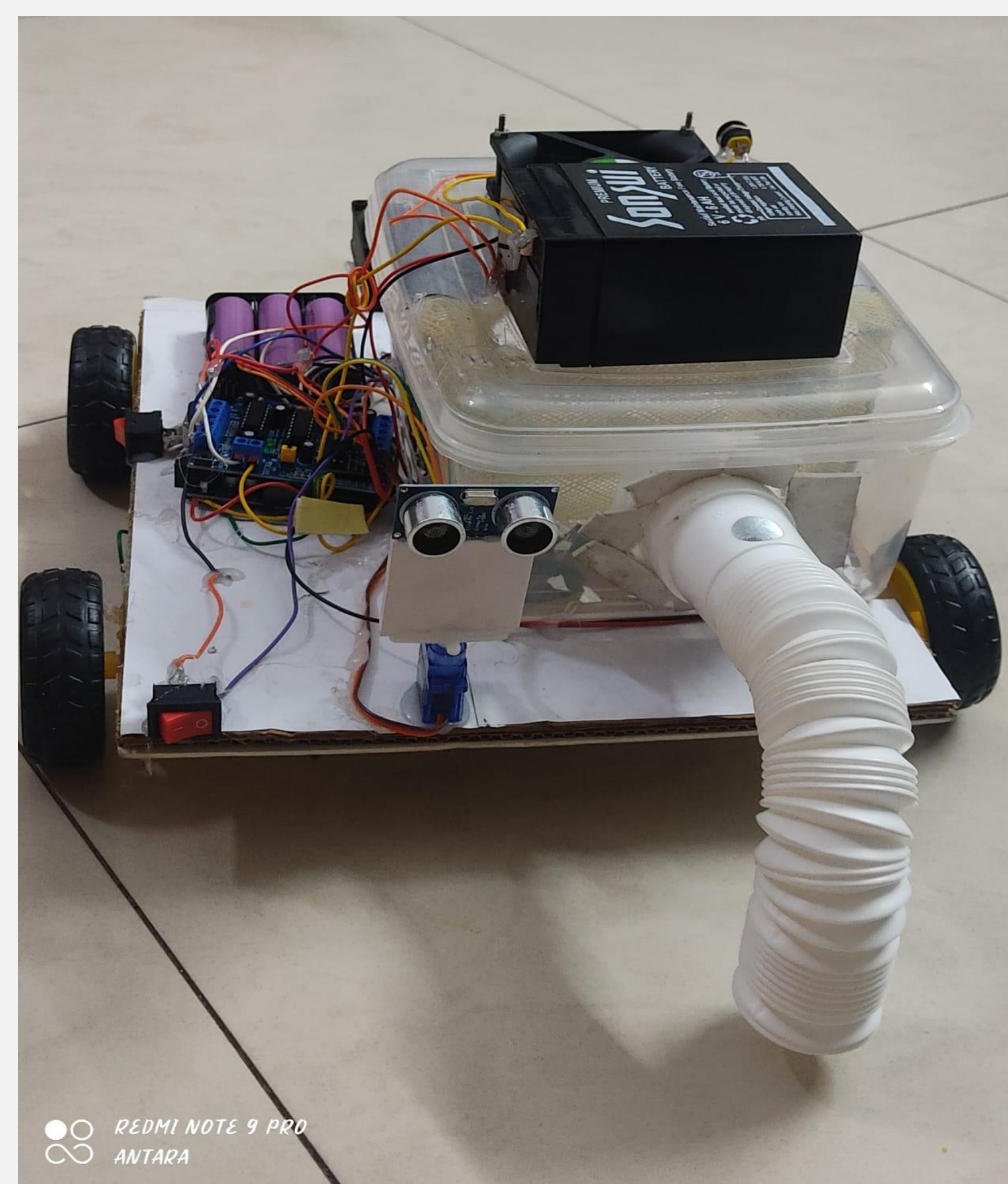


Fig. 3 Front view

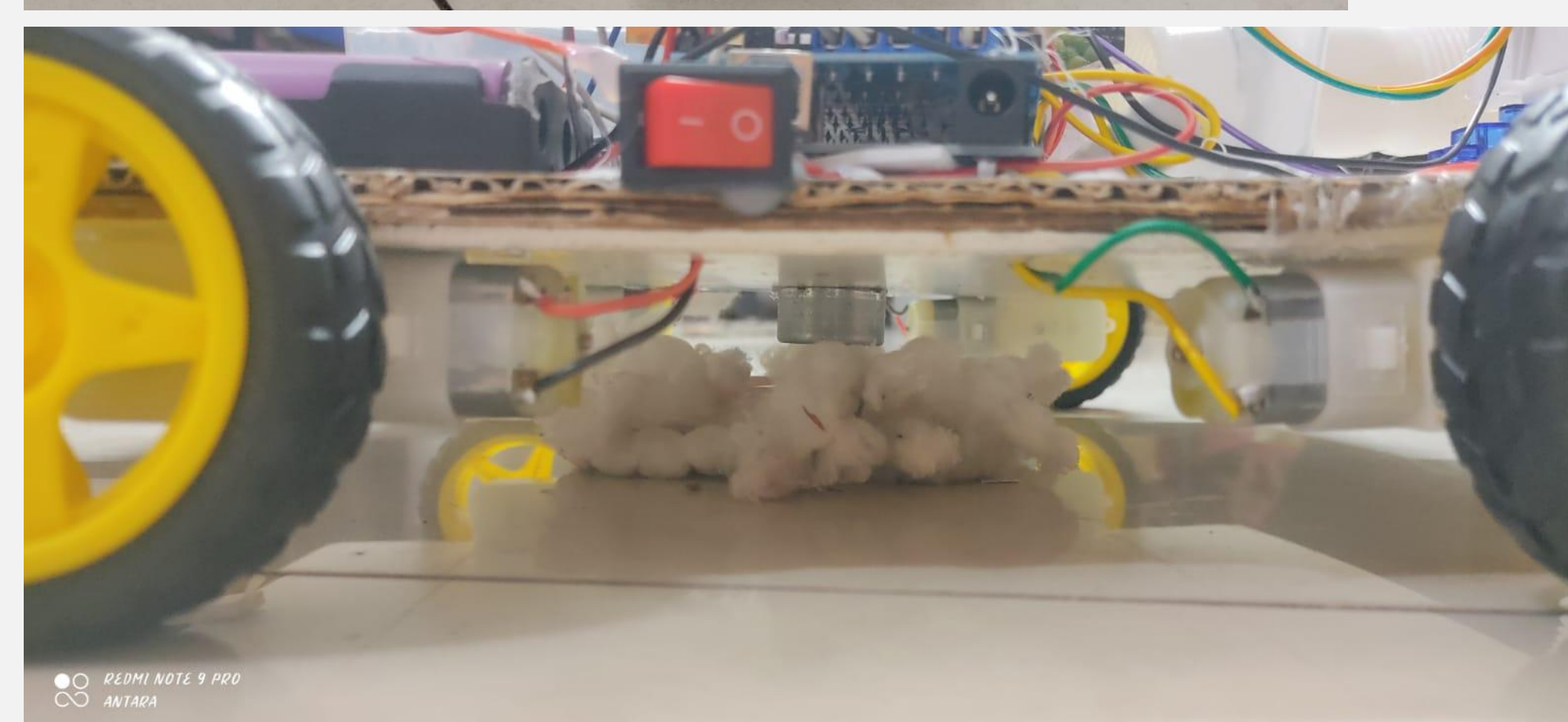


Fig.3: Bottom view

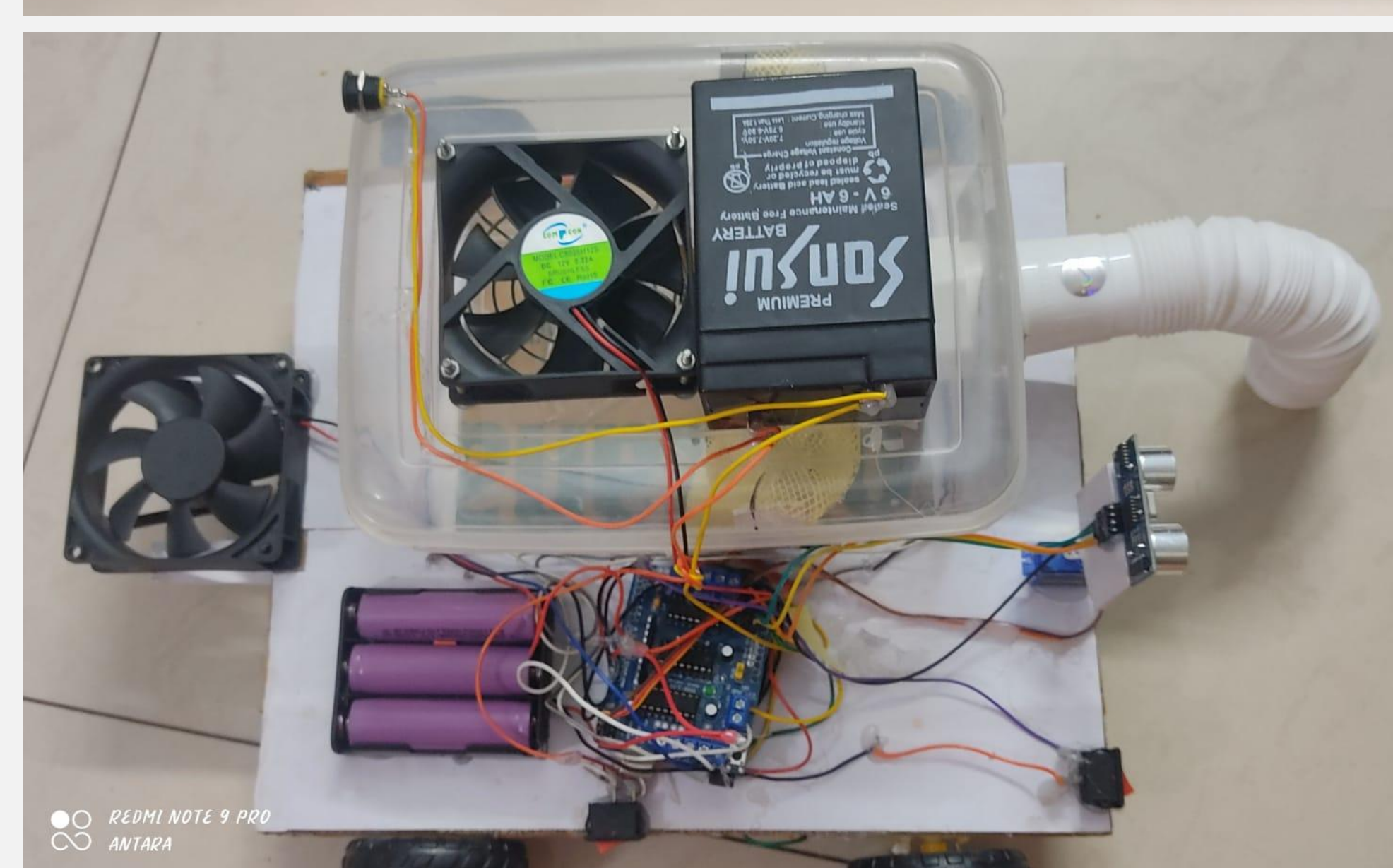


Fig. 4: Top view

Conclusions

- We were successful in making the automatic floor cleaner.
- It is able to clear the dust, mop the floor and dry the patches of water on the floor.
- We have faced a backlash to mop the floor with water due to excessive drawing of power.
- Thus we have not used water to mop the floor.
- All the functions of the Snoop Doggy i.e vacuum, swiper, drier are working simultaneously while avoiding the obstacles; are functioning properly.

Future Work

- A container of water may be added to wipe the floor.
- A technology to detect the current state of water level, the remaining charge of the battery.
- The drier at the back of the floor cleaner can be made more effective by using hot air.

References

- [1] IEEE Standard for User Interface Elements in Power Control of Electronic Devices employed in Office/Consumer Environments, IEEE Standard 1621, 2004 (R2009).
- [2] iRobot.com, 'iRobot Corporation: We Are The Robot Company', 2015. [Online]. Available: <http://www.irobot.com/>.