Virtual Telepresence Robot

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Problem Statement

- During pandemics such as Covid 19, patients who are infected have to stay isolated for number of days to recover. During that period, they are totally cut off from the environment.

- On the other hand, even to monitor the condition of the patient, the nurses have to wear a special suit so that they do not get infected.

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Proposed Solution

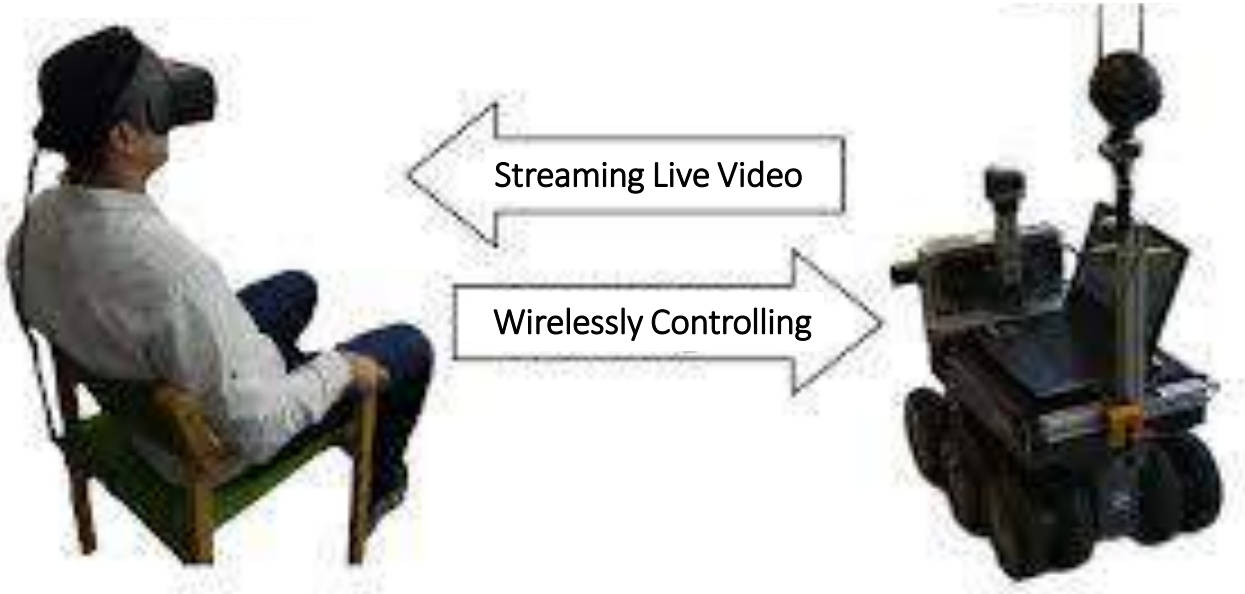
By using Arduino, Bluetooth modules, Relays, Accelerometer Sensor and other components, we overcame the problems such as:

- When one is sick in bed or unable to move out of a restricted environment, this robot can help the user to observe and experience the world outside.
- To help the user in contagious or infectious environment.
- Provide surveillance

System Overview

User sitting away

Telepresence robot with a camera



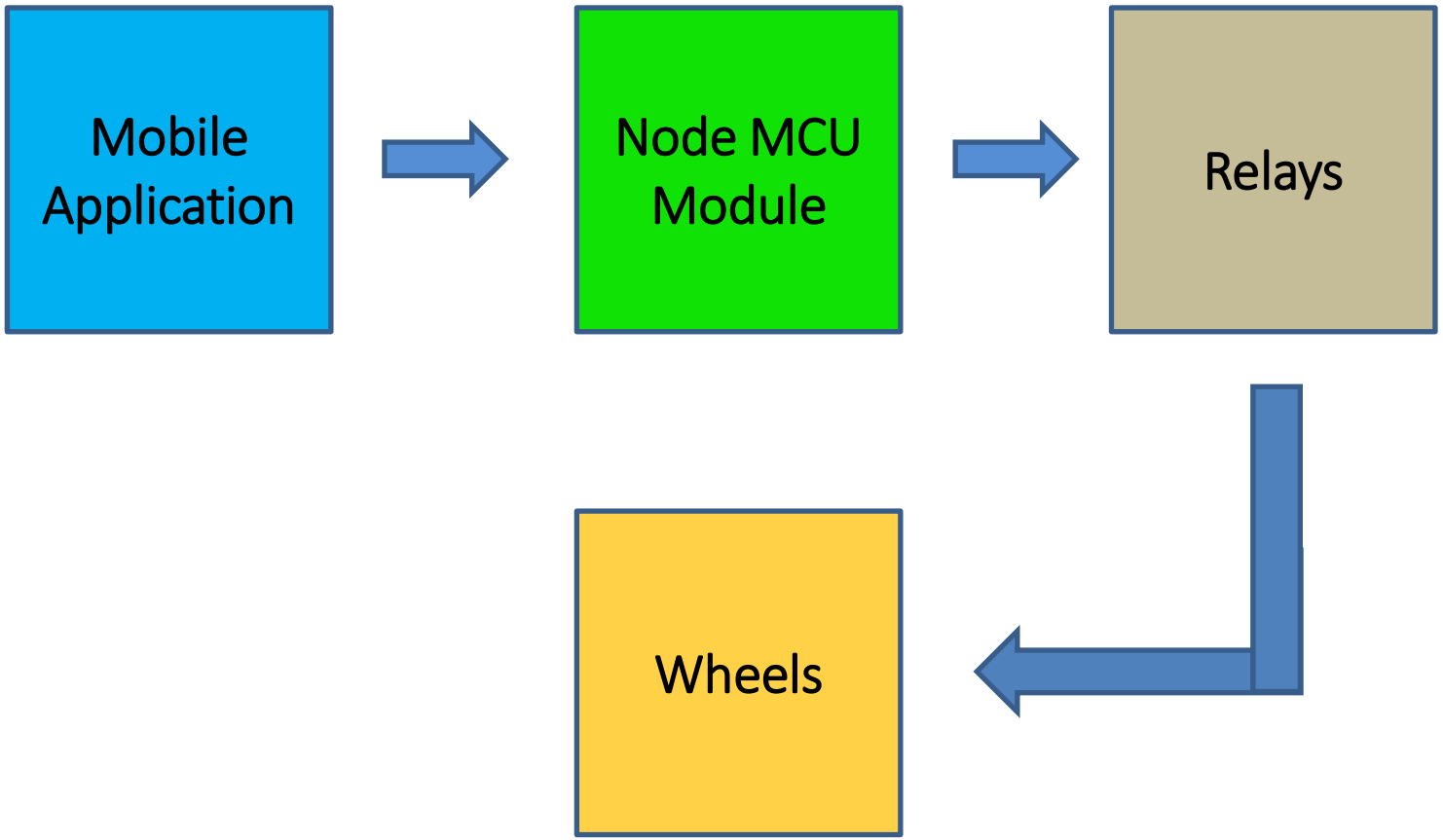
Block Diagram

Camera Control

Accelerometer Sensor → ESP8266 Wi-fi Module → Bluetooth Module → Bluetooth Module → Arduino UNO → Relays → DC Gear Motors

Block Diagram

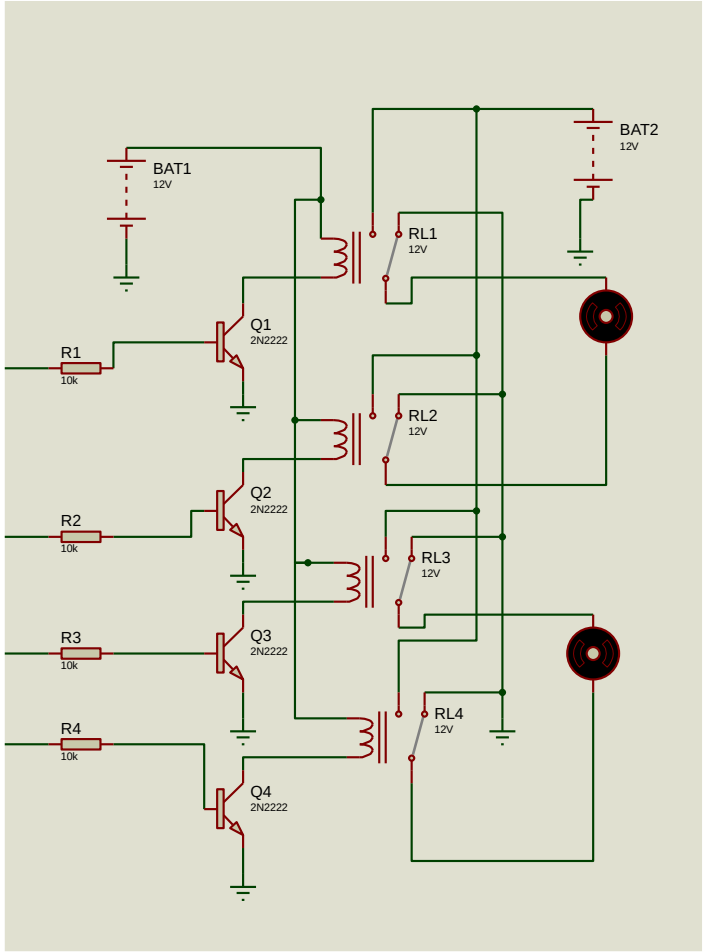
Robot Movement



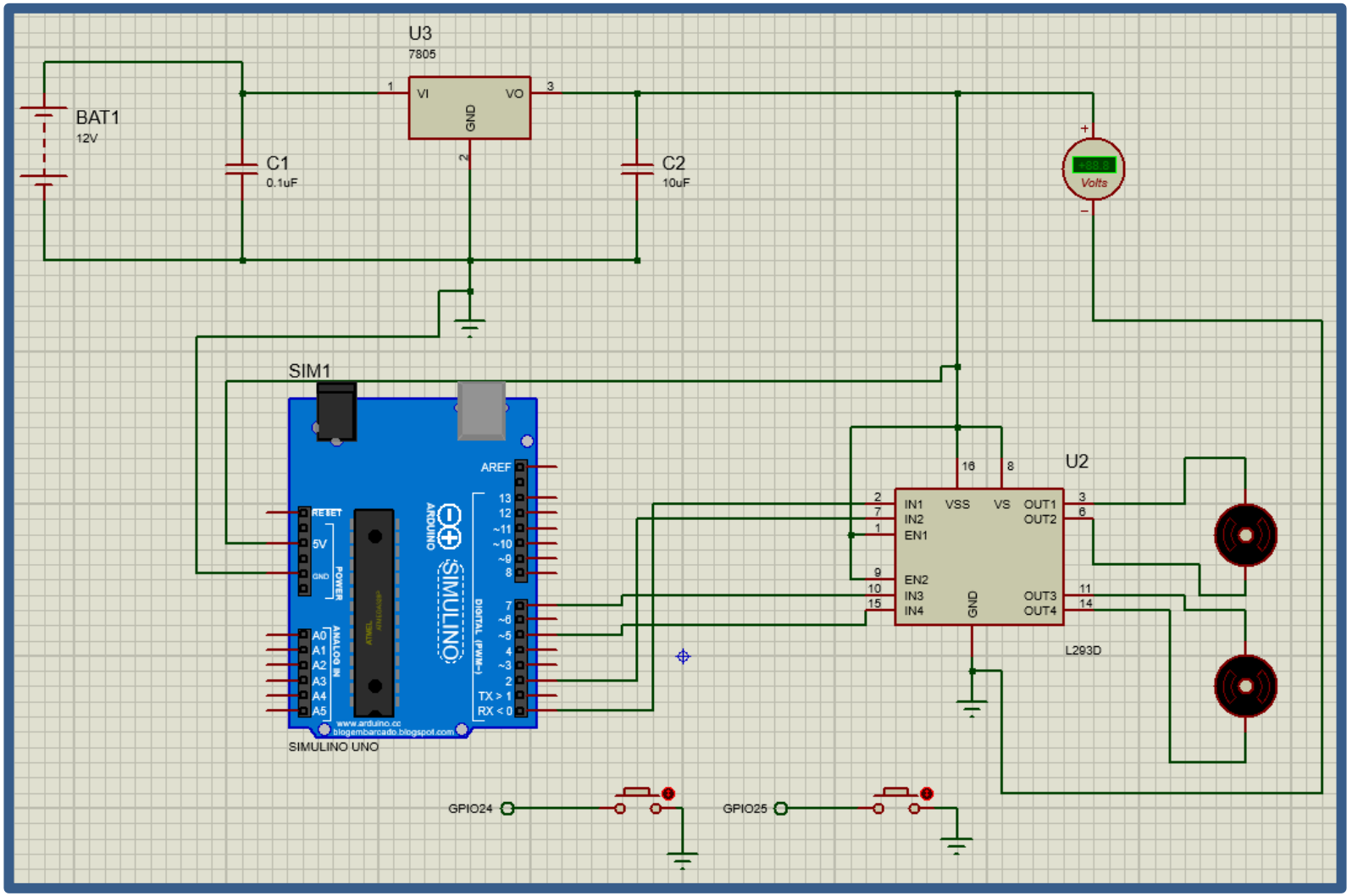
Implementation Details

- 2 relays to drive one motor

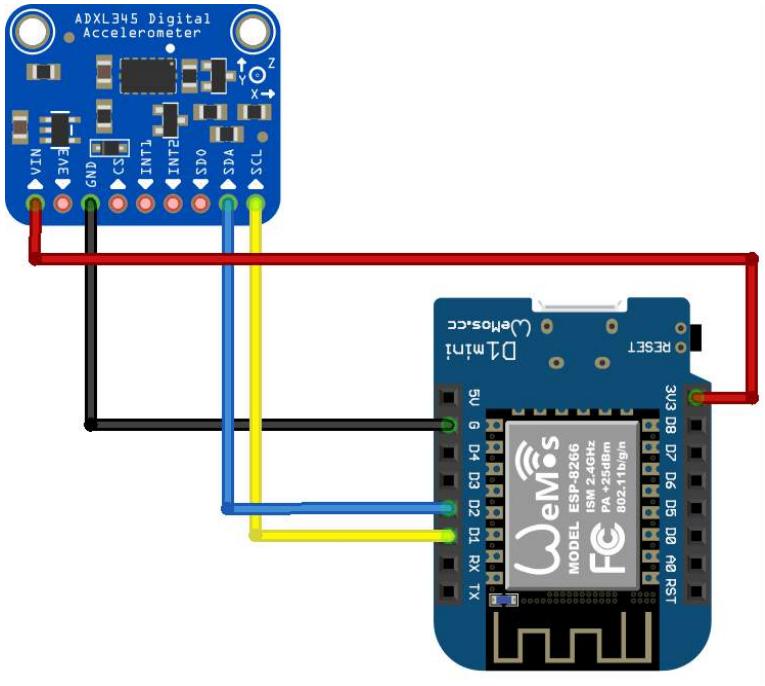
Operation	RL1	RL2	RL3	RL4
Forward	ON	OFF	ON	OFF
Reverse	OFF	ON	OFF	ON
Left	ON	OFF	OFF	OFF
Right	OFF	OFF	ON	OFF
Stop	OFF	OFF	OFF	OFF



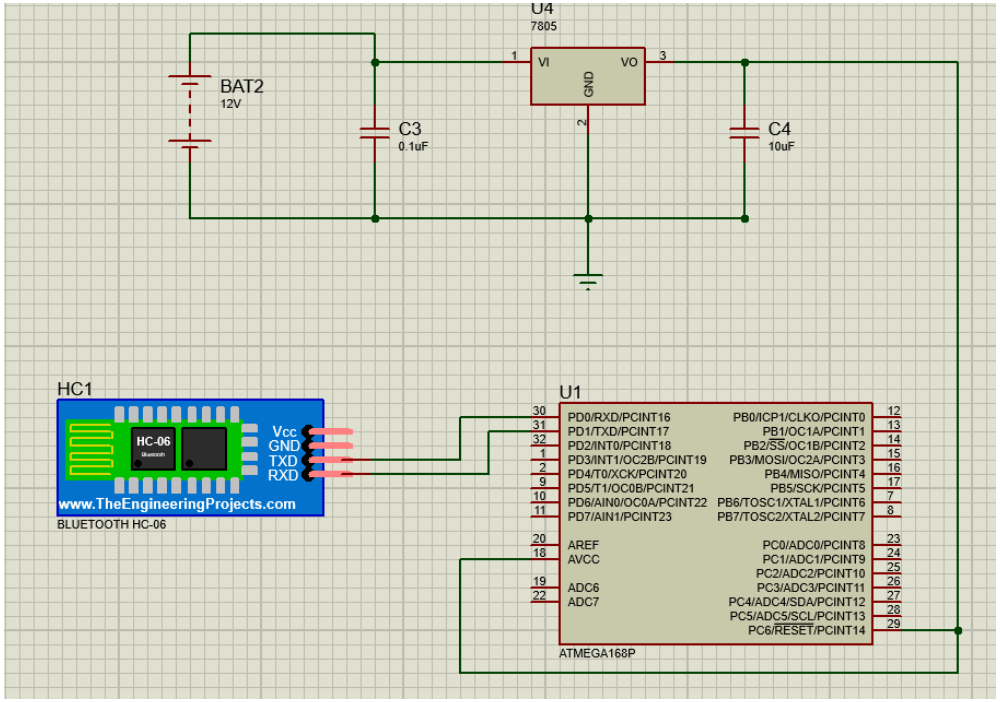
Simulations



Simulations

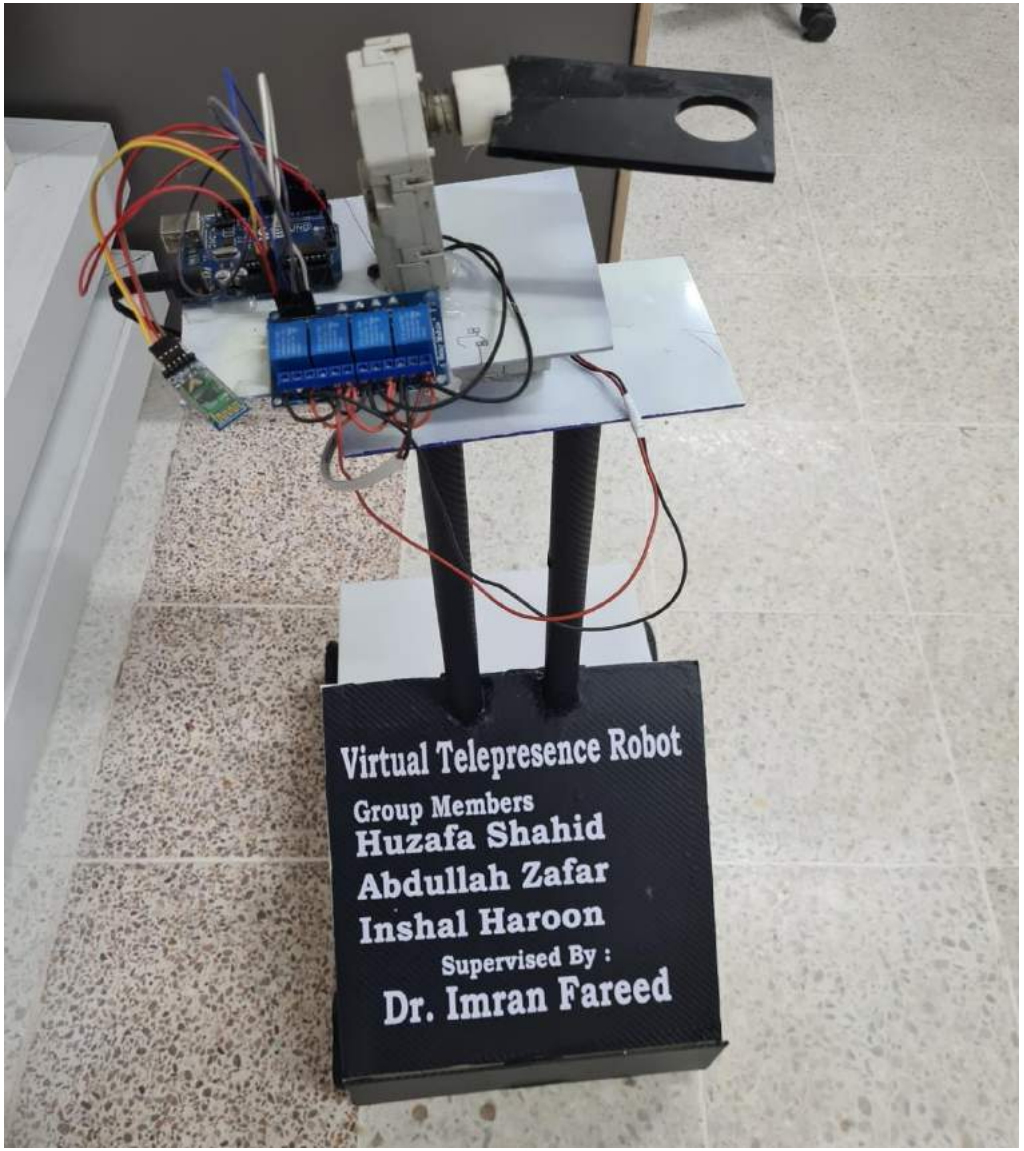


Interfacing ADXL355 with ESP8266



Interfacing HC-05 with ESP8266

Hardware Design



Video Demonstration

Video Demonstration

Conclusion

- Indoor surveillance
- Safety for doctors and nurses during pandemics
- Interact with outdoor environment just by moving your head
- Control the robot wirelessly using Application

References

[1] Shamin P Shaji, Sharon Mariam George, Rahul Shaji, Steffy Don, Ms P Careena, **(Virtual Telepresence Robot)** International Journal of Innovative and Emerging Research in Engineering Volume 4, Issue 2, 2017.

http://www.ijiere.com/FinalPaper/FinalPaperVirtual%20Telepresence%20Rob171200.pdf

[2] Junjie Chen; Weiyi Huang; Aiguo Song (**Design of new research platform of telepresence telerobot system),** 30 May 2006

https://ieeexplore.ieee.org/abstract/document/1635064

[3] Chinthapatla Sri Varshini, Mohammad Arif Khan, Yogita khandge and Ranjana Ubale, (**Telepresence Sureveillence Robot)**, Journal of Emerging Technologies and Innovative Research (JETIR), March 2021, Volume 8, Issue 3.

https://www.jetir.org/papers/JETIR2103153.pdf

Thank You

Any Questions?