FLOWER WATERING BOT

CSE 495
4.Presentation

Muhammed ÖZKAN

Advisor: Dr. Alp Arslan BAYRAKÇI

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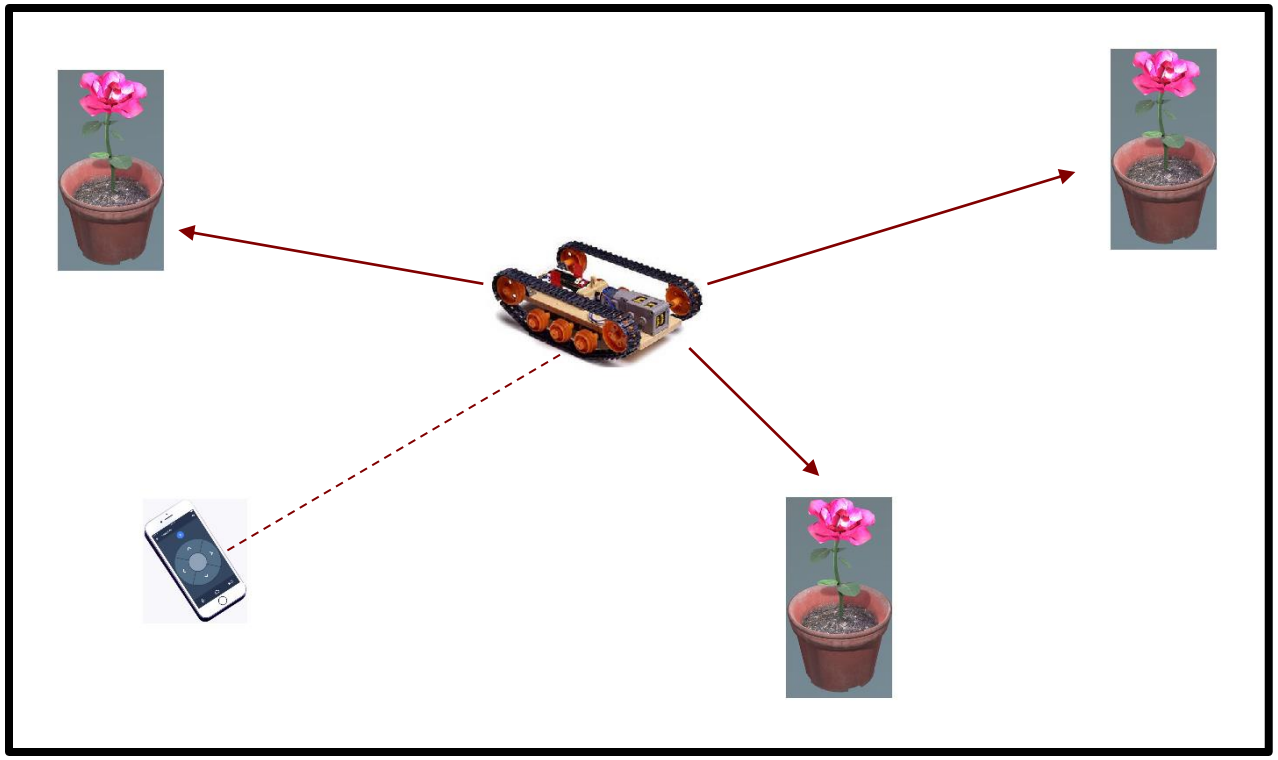
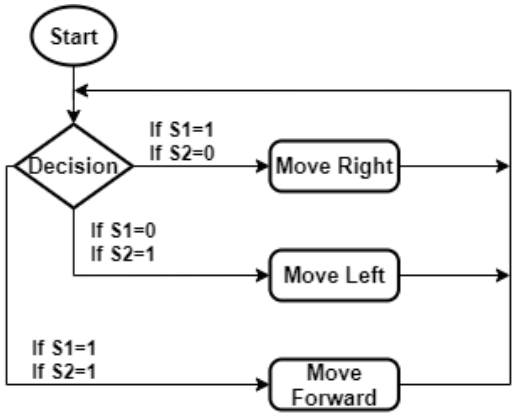
Scheme and Description of the Project

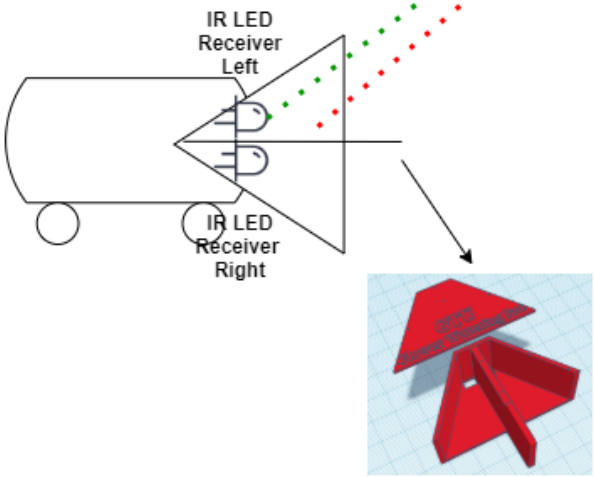


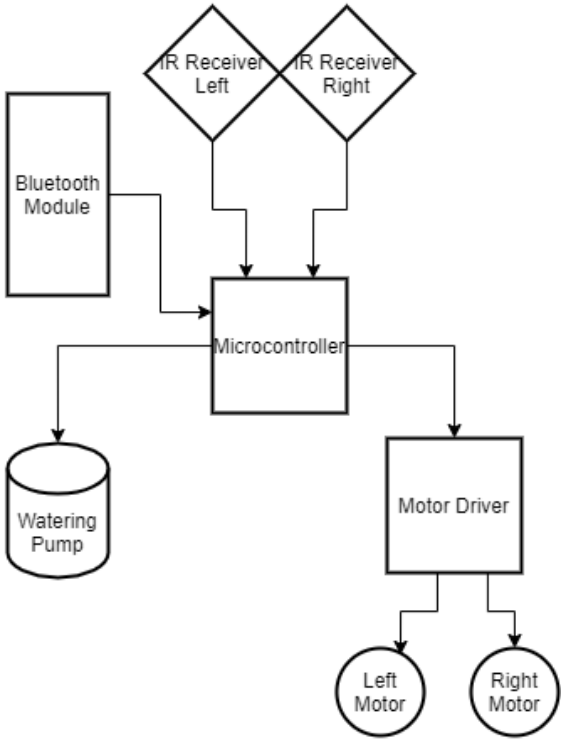
- In this project, a robot will be designed that can water the flowers in the house.
- Water amount and periods will be controlled via an android application.
- The robot will be able to automatically find the flowers and give water. In addition, manual control and watering will be possible through the application.

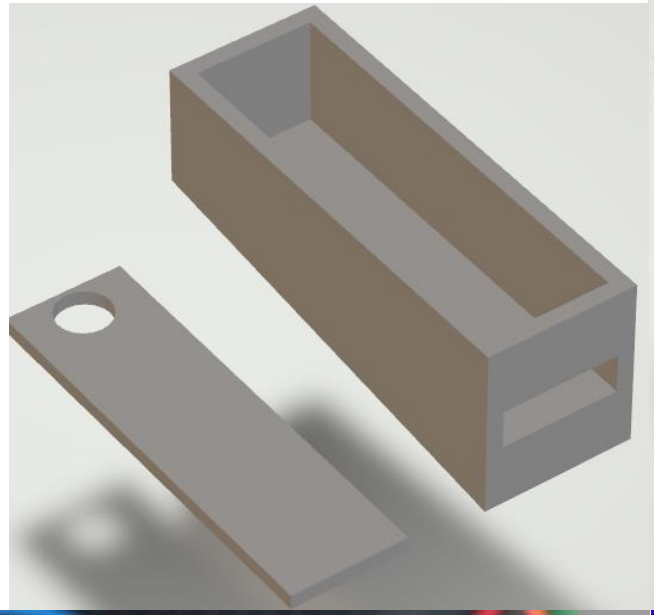
Project Design Plan

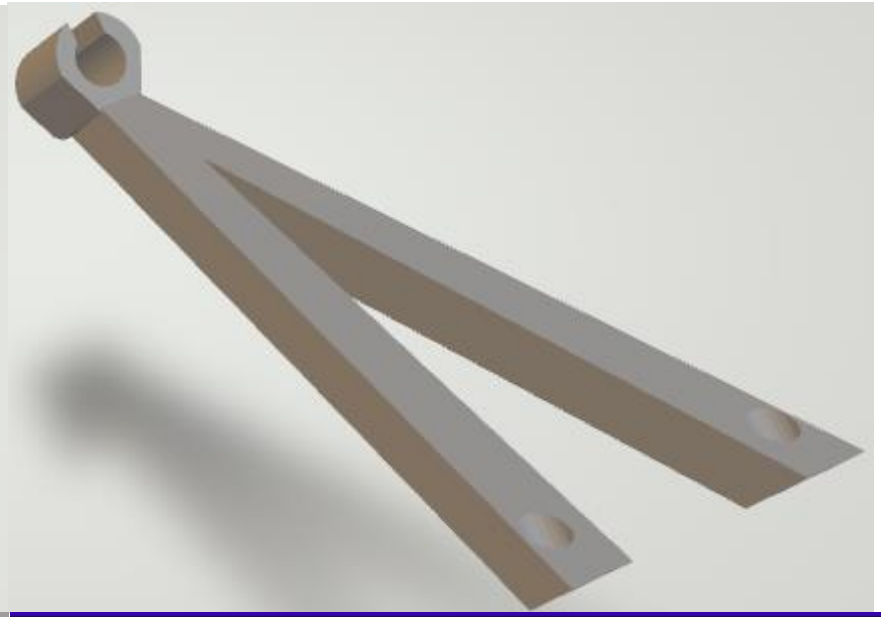


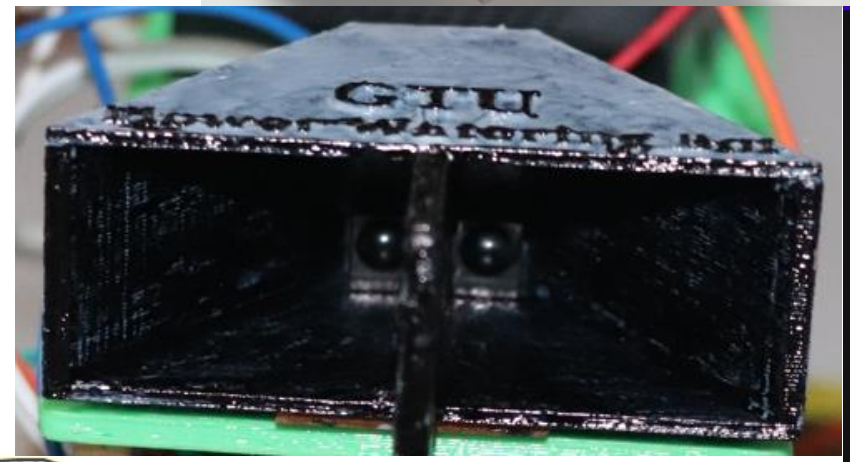
S1= IR Receiver 1
S2= IR Receiver 2
1=HIGH Signal
0=LOW Signal
When S1 & S2 = 0
Then Stop

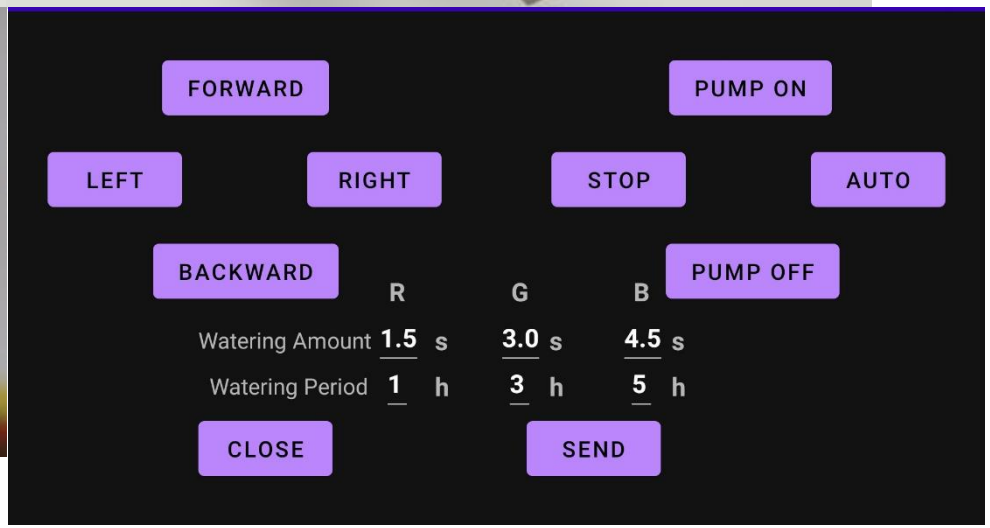




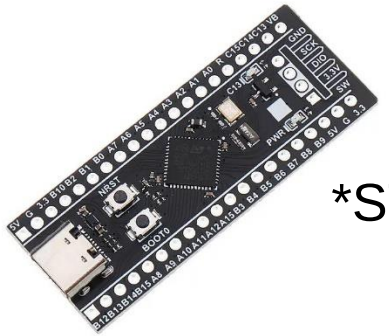





GTU


FORWARD
PUMP ON
LEFT
RIGHT
STOP
AUTO
BACKWARD
PUMP OFF
R
G
B
Watering Amount 1.5 s 3.0 s 4.5 s
Watering Period 1 h 3 h 5 h
CLOSE
SEND

Project Requirements



Hardware Requirements

*Robot Body *Motors *Motor Driver *Battery

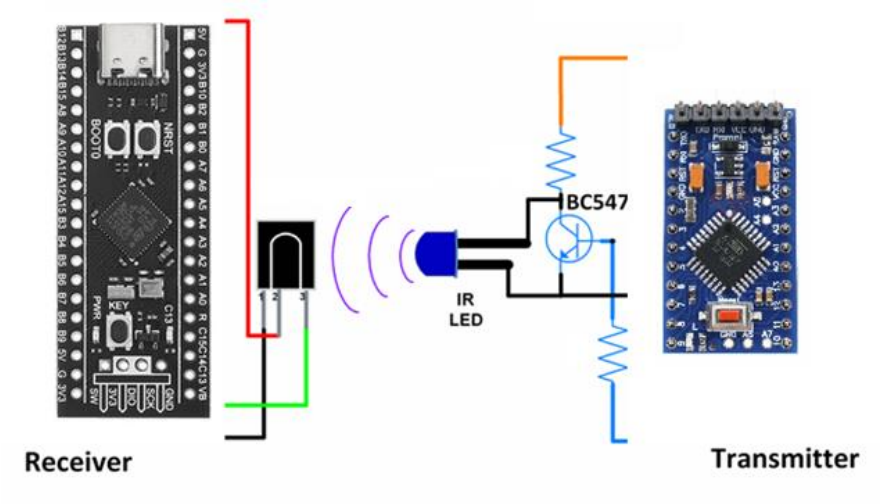
*STM32FXXX Microcontroller *Bluetooth Module

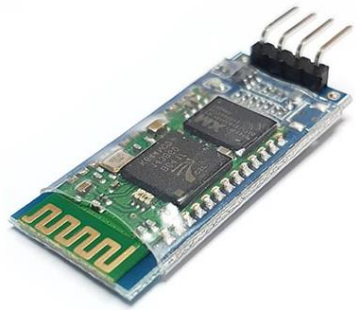
*Water Pump *IR Receiver-Transmitter

Developing Requirements

*STM32CubeIDE for STM32F4 Microcontroller

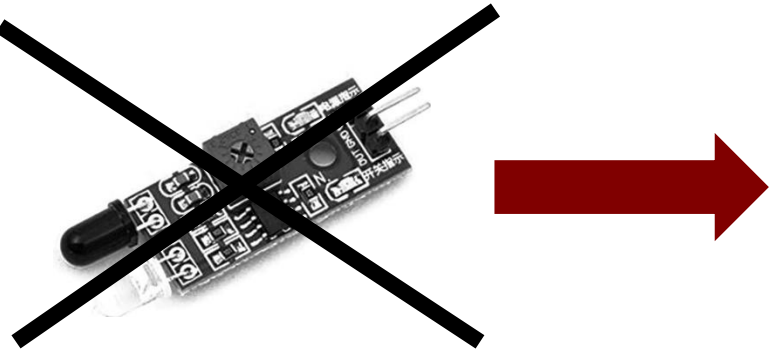
*Android Studio IDE for Mobile App





HC-06

5v Role



MZ-80

Water Pump

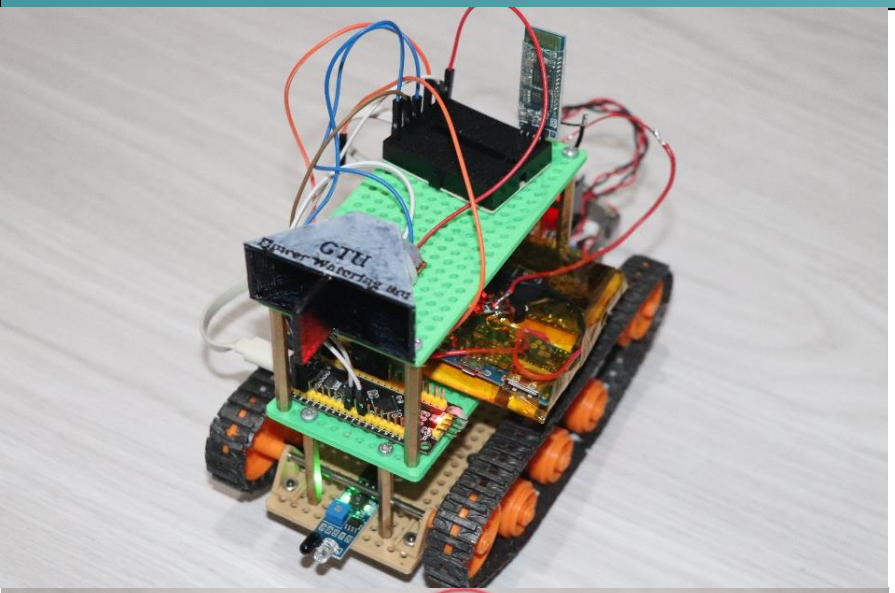
Project Requirements

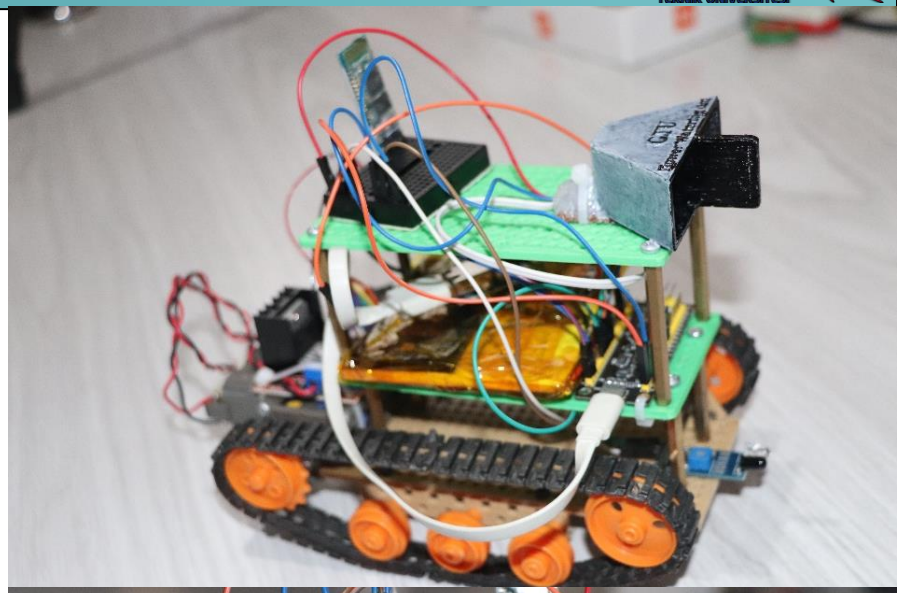
- All parts of the robot must be put together.
- A system should be developed for flowers to send IR signals.
- An algorithm should be developed for the robot to move forward with the incoming signals.
- A system should be developed to find the desired flower by means of IR signals with the robot.
- An algorithm should be developed for Bluetooth communication.
- Android application should be developed for robot control.
- A system should be designed for water pump control.

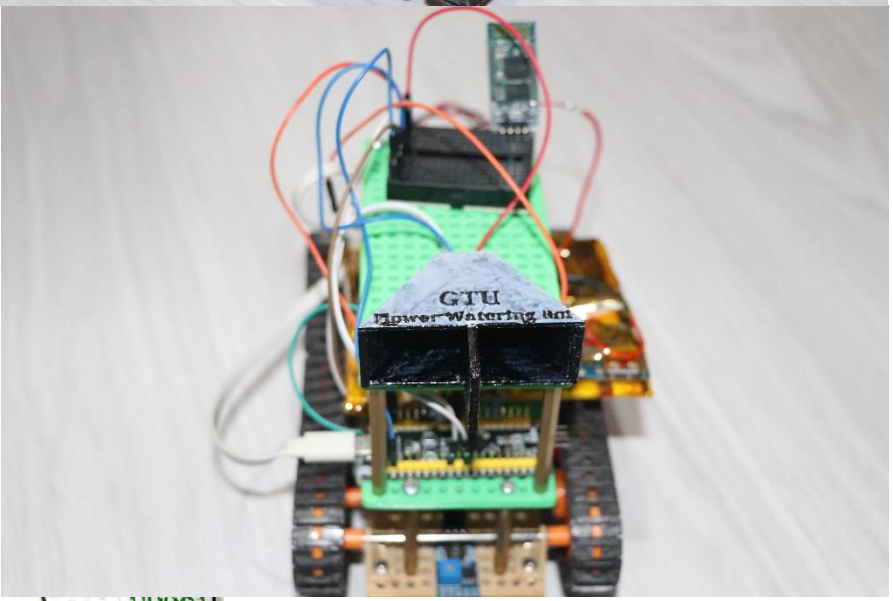
Success Criteria

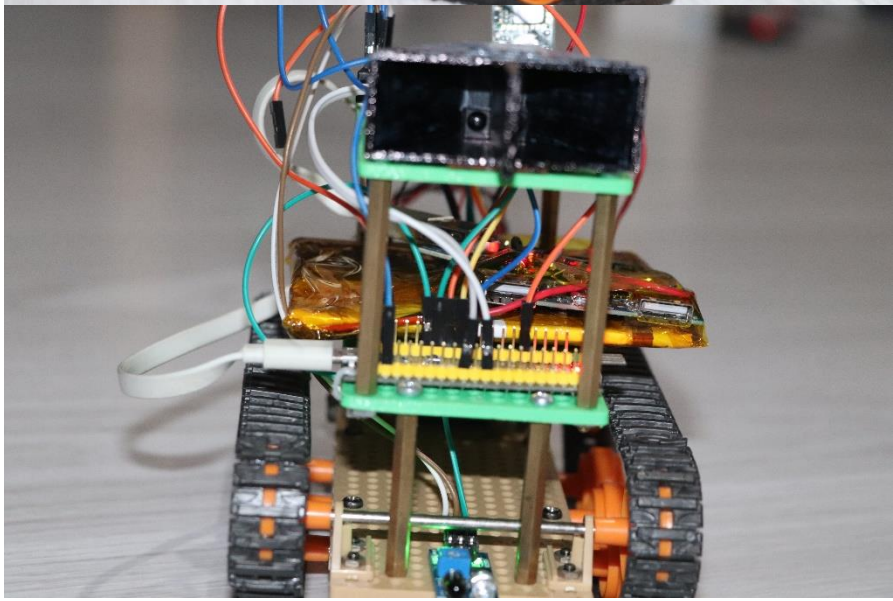
1. **The flower to be watered must be found by the robot in a 30m^2 environment.**
2. **The watering period and amount must be adjusted via Bluetooth by application.**
3. **The flowers must be distinguishable by the device and be watered differently period and amount.**
4. **It must be controlled manually via the application. (forward, backward, right, left)**
5. **The pump must be controlled manually via the application.**

2.Presentation Images

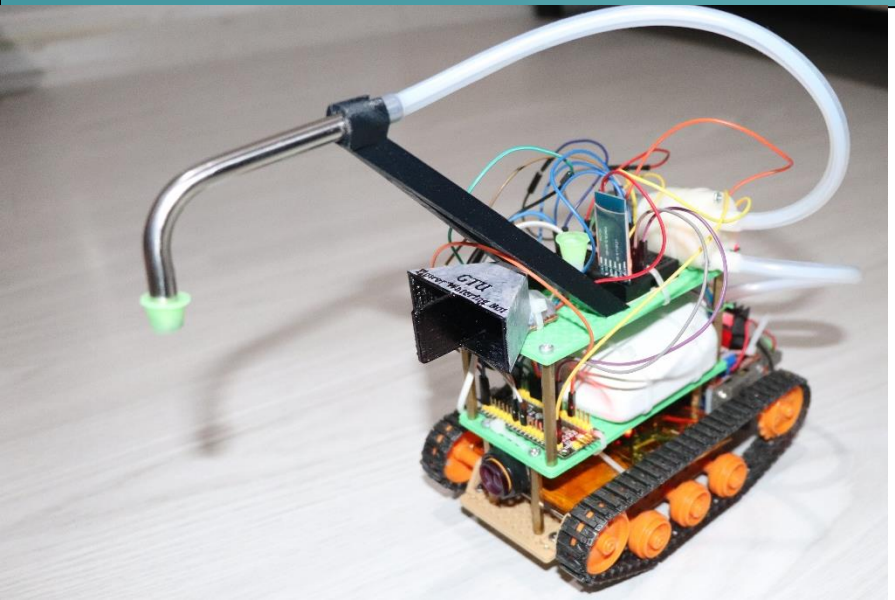


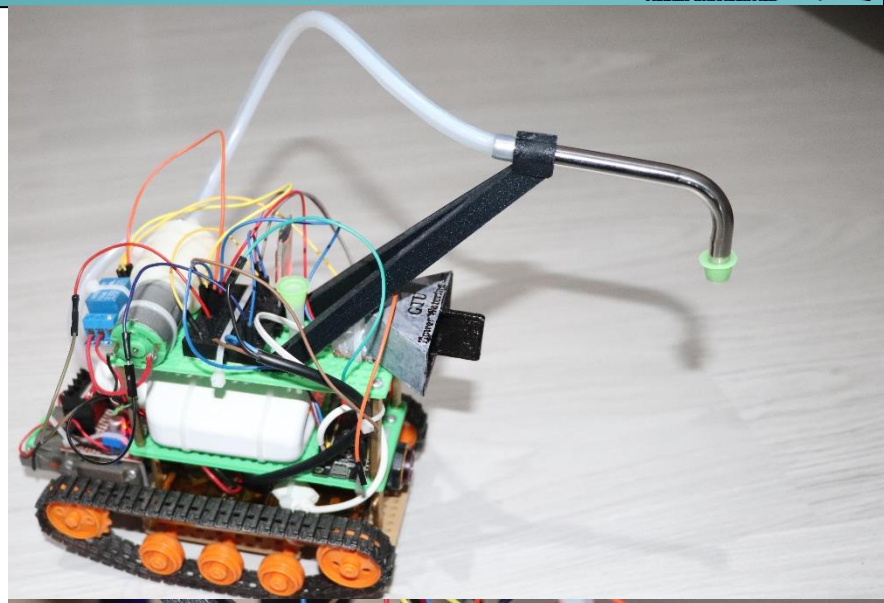


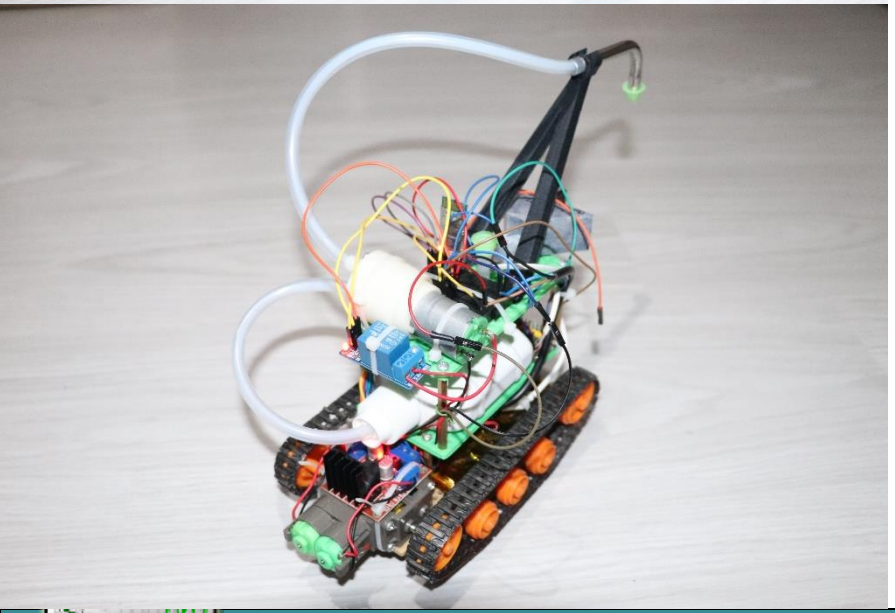


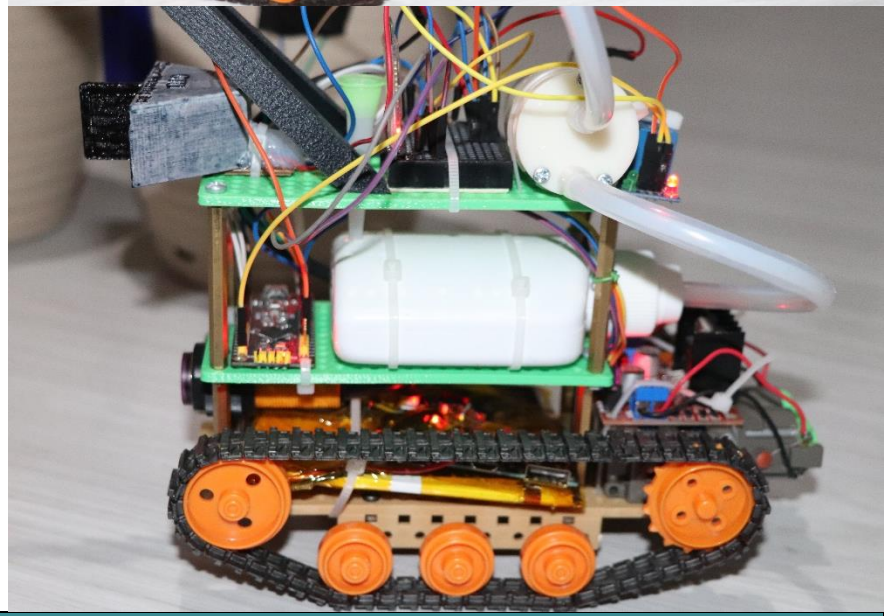


3.Presantation Images









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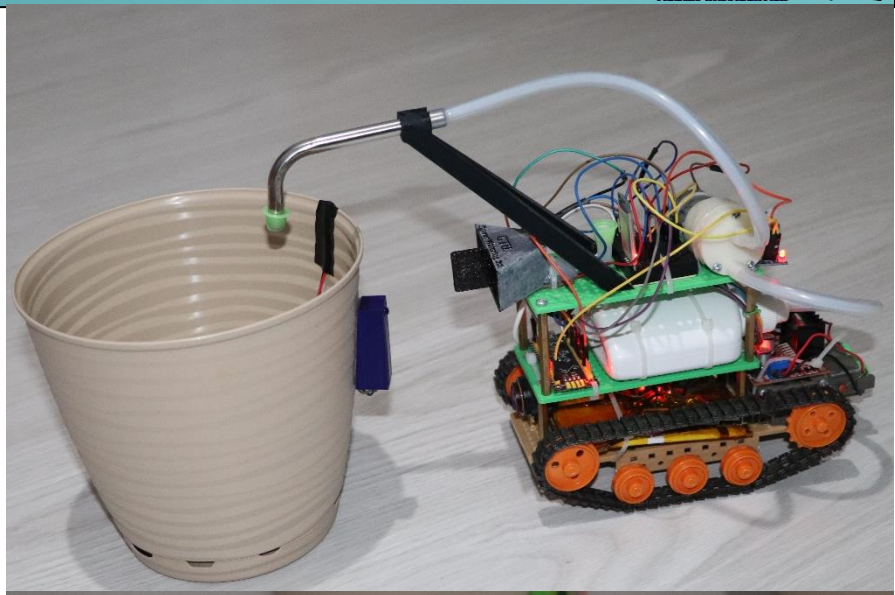

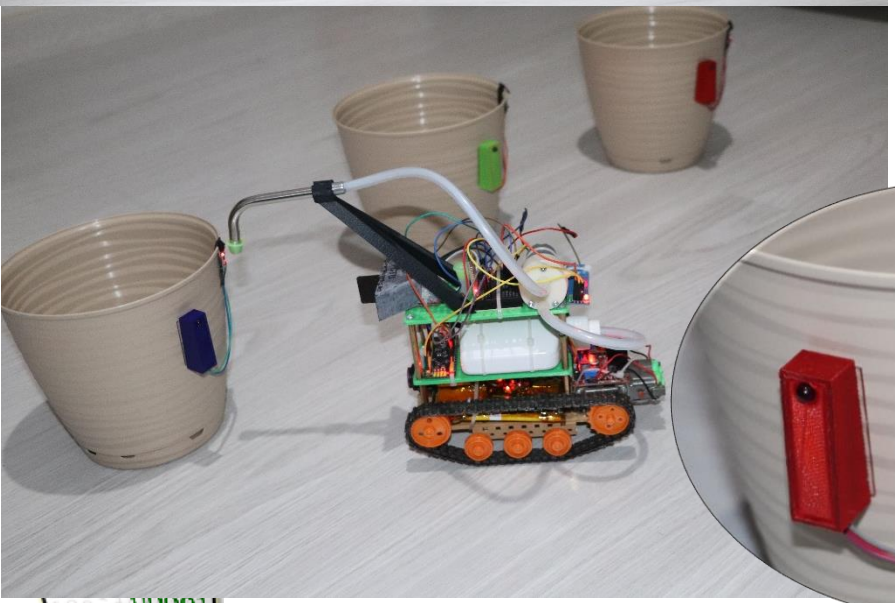

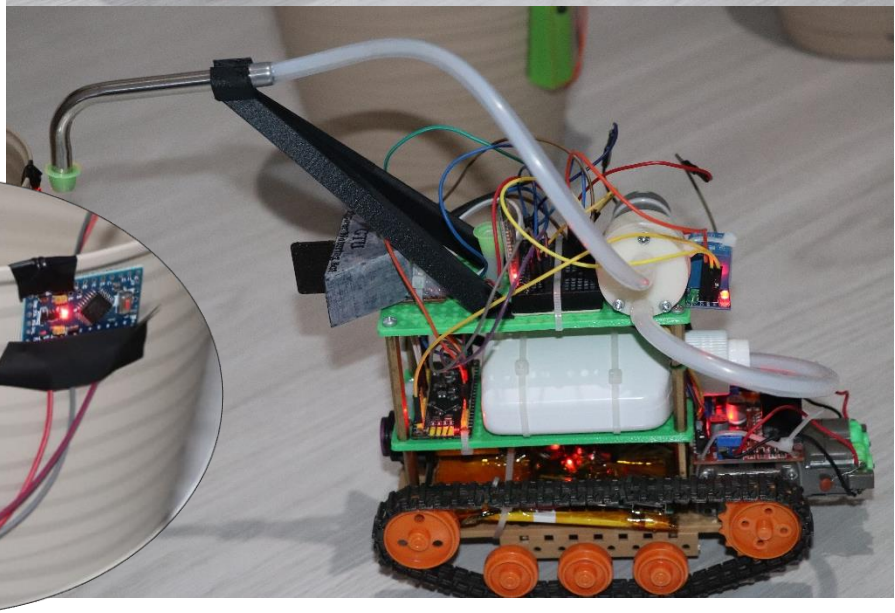

Timeline

8.12.2021 - 19.01.2022 4.Last Presentation

- Control via mobile app.
- Watering process via mobile app.
- Watering amount and period setting.

Timeline

- 20.10.2021 - 10.11.2021 2.Presentation

  ~~Combining equipment.~~

  ~~Starting the hardware is the first tests.~~

  ~~Performing the operation of finding a flower.~~

- 10.11.2021 - 8.12.2021 3.Presentation

  ~~The presence of more than one flower separately.~~

  ~~The process of watering the flowers.~~

  ~~Design of mobile application, communication with hardware.~~

- 8.12.2021 - 19.01.2022 4.Last Presentation

  ~~Control via mobile app.~~

  ~~Watering process via mobile app.~~

  ~~Watering amount and period setting.~~

Resources

[1] FOLLOW ME ROBOT USING INFRARED BEACONS Salman Afghani, Muhammad Ishfaq Javed Army Public College of Management and Sciences, Rawalpindi, PAKISTAN ISSN-L: 2223-9553, ISSN: 2223-9944 Vol. 4 No. 3 May 2013 https://journaldatabase.info/articles/follow_me_robot_using_infrared_beacons.html

[2] https://dronebotworkshop.com/using-ir-remote-controls-with-arduino/

[3] http://ismailtuglu.blogspot.com/p/bluetooth-ile.html

[4] https://controllerstech.blogspot.com/2018/07/how-to-receive-uart-data-instm32.html?m=1

[5] https://www.electronicwings.com/arduino/ir-communication-using-arduino-uno

[6] https://deepbluembedded.com/how-to-receive-uart-serial-data-with-stm32-dmainterrupt-polling/