Crane Robot Project

- *Description*

  The robot is controlled by phone, and uses 4 DC motors, connected to Omni-Wheels for propulsion. The "brain" of the robot is an Arduino Uno, equipped with a shield used to control the robotic arm, attached to the upper part of the chassis. For power, I used 3 rechargeable lithium-ion batteries of 3.7V each, connected in series in order to get a power of 11.1V. The chassis of the robot is made out of aluminum. For this project I had most of the parts on hand from previous projects.

- *Hardware Components:*

  1 Arduino Uno R3:
  https://docs.arduino.cc/hardware/uno-rev3

  1 Tinkerkit Braccio robot:
  https://store.arduino.cc/products/tinkerkit-braccio-robot

  4 DC motors:
  https://www.arduino.cc/documents/datasheets/DCmotor6_9V.pdf

  2 Dual H-bridges:
  https://components101.com/modules/l293n-motor-driver-module

  4 Omni-wheels:
  https://www.optimusdigital.ro/ro/mecanica-roti/11431-roata-dubla-de-aluminu-easymech-omni-100-mm-bush-roller.html

  2 LM2596 DC-DC Step-Down Converter:
  https://robu.in/product/lm2596s-dc-dc-buck-converter-power-supply/

1 LM2596 DC-DC Step-Down Converter with display: https://www.optimusdigital.ro/en/adjustable-step-down-power-supplies/805-lm2596-dc-dc-module-with-voltage-display.html

3 Li-ion batteries of 3.7V : https://components101.com/batteries/18650-lithium-cell

1 HC-06 Bluetooth module: https://components101.com/wireless/hc-06-bluetooth-module-pinout-datasheet

1 Microswitch: https://ardushop.ro/ro/home/631-intrerupator-mic-rocker.html

- Software Applications used:

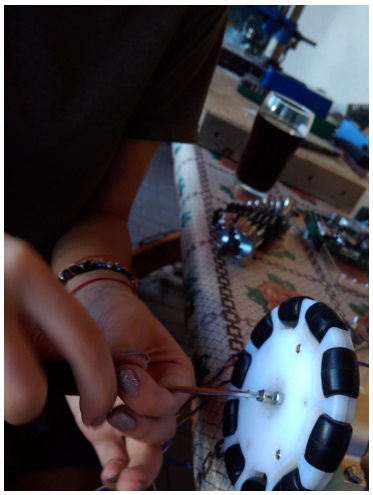
  Arduino: https://www.arduino.cc/en/software

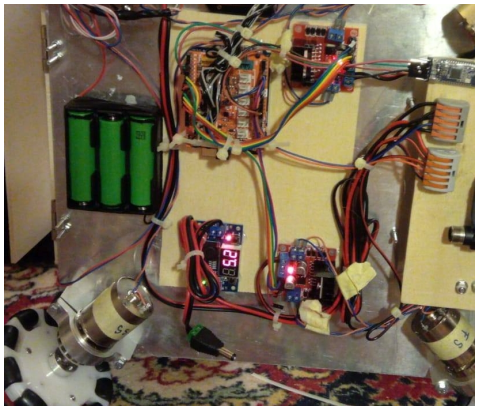
  Dabble: https://thestempedia.com/product/dabble/

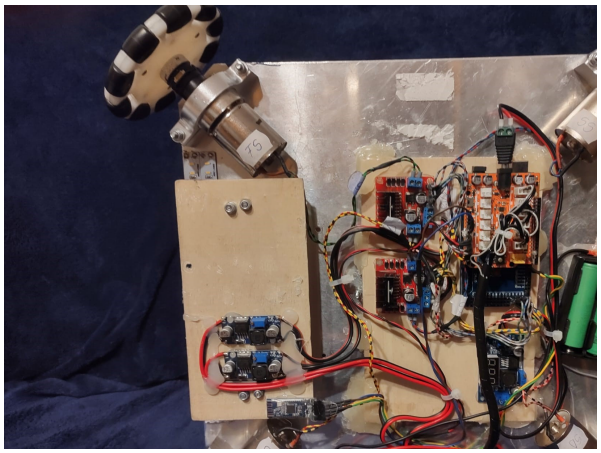
- *Program Flow*

The code mostly consists of functions used to define both arm and wheel movement. The setup function is used to define the motors from the above- define classes, as well as to initialize the serial monitor, the robot arm, and Dabble. The loop function handles phone inputs, and calls appropriate functions, depending on the user input, as well as the controller mode (arm or wheel).

- *Photos describing the progress of the project*








- *Code*

Check my GitHub link: https://github.com/Bee7go/Crane-Robot