

FNK0077:

Freenove_Tank_Robot_Kit_for_Raspberry_Pi

Supported Communication Method

| Method | Description |
|------------|--|
| TCP Socket | Port 5003 for command transmission, Port 8003 for video transmission |

Command Format

Format: "A#10#20#30#40#50#\n"

- Each command starts with a command character (e.g., "A") to indicate the category.
- The "#" symbol acts as a separator between the command character and parameters.
- Each command ends with "\n" to mark its termination.
- During parsing:
 1. Split commands using "\n".
 2. For each command, split the command character and parameters using "#".
 3. Any remaining data after splitting should be carried over to the next parsing cycle.
 4. Commands consist of 1 command character and 0 to n parameters, depending on the specific command.

FNK0077 Commands

CMD_MOTOR = "CMD_MOTOR"
CMD_LED = "CMD_LED"
CMD_SERVO = "CMD_SERVO"
CMD_ACTION = "CMD_ACTION"
CMD_SONIC = "CMD_SONIC"
CMD_MODE = "CMD_MODE"

FNK0077 Communication Protocol

CMD_MOTOR = "CMD_MOTOR"

Controls the basic movement of the car, value range: - 4095 ~ 4095

| App Command | Action |
|-------------------------|---------------|
| CMD_MOTOR#2000#2000\n | Move forward |
| CMD_MOTOR#-2000#-2000\n | Move backward |
| CMD_MOTOR#-2000#2000\n | Turn left |
| CMD_MOTOR#2000#-2000\n | Turn right |
| CMD_MOTOR#0#0\n | Stop |

CMD_LED = "CMD_LED"

Controls the LED lights.

Format: CMD_LED#mode#R#G#B#data\n

- mode: LED mode.
- R, G, B: Color values.
- data: the selection of 4 LEDs, value range: 0-15, 15 means selecting 4 LED lights.

| App Command | Action |
|---------------------------|-------------------------------|
| CMD_LED#mode#R#G#B#data\n | Light up with specified color |

LED Modes:

| App Command | Action |
|--------------------------|--|
| CMD_LED_MOD#0#R#G#B#15\n | Turn off |
| CMD_LED_MOD#1#R#G#B#15\n | Manual RGB control |
| CMD_LED_MOD#2#R#G#B#15\n | Chasing mode (RGB value invalid) |
| CMD_LED_MOD#3#R#G#B#15\n | Blink mode (input RGB) |
| CMD_LED_MOD#4#R#G#B#15\n | Breathing mode (input RGB) |
| CMD_LED_MOD#5#R#G#B#15\n | Rainbow breathing mode (RGB value invalid) |

CMD_SERVO = "CMD_SERVO"

Controls servo angles.

Format: CMD_SERVO#data#angle

data: Servo number (0 = gripper servo, 1 = lift servo).

angle: Servo angle (range: 90–150°).

| App Command | Action |
|---------------------|-----------------------------------|
| CMD_SERVO#0#angle\n | Set gripper servo angle (90–150°) |
| CMD_SERVO#1#angle\n | Set lift servo angle (90–150°) |

Host Control Commands:

Up: CMD_SERVO#1#angle+5

Down: CMD_SERVO#1#angle-5

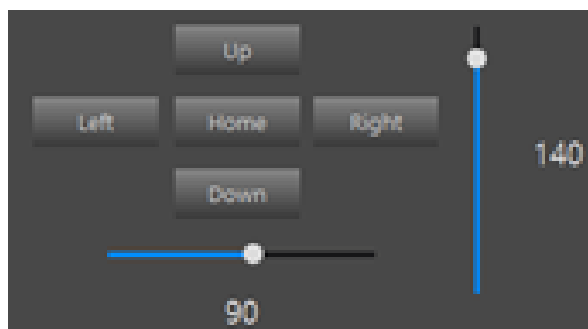
Left: CMD_SERVO#0#angle-5

Right: CMD_SERVO#0#angle+5

Home:

CMD_SERVO#0#90

CMD_SERVO#1#140



CMD_ACTION = "CMD_ACTION"

Controls object gripping and releasing.

| App Command | Action |
|----------------|------------------------------|
| CMD_ACTION#1\n | Move forward and grip object |
| CMD_ACTION#2\n | Release gripped object |

CMD_ACTION#1

Move forward and grip the object. After the action is completed, send the following to the host computer (client): CMD_ACTION#10

(Used to determine whether the action is completed.)

CMD_ACTION#2

Move forward and grip the object. After the action is completed, send the following to the host computer (client): CMD_ACTION#20

(Used to determine whether the action is completed.)

CMD_MODE = "CMD_MODE"

Sets the car's movement mode.

| App Command | Action |
|--------------|---|
| CMD_MODE#0\n | Free control mode |
| CMD_MODE#1\n | Obstacle avoidance mode |
| CMD_MODE#2\n | Line-following & obstacle-clearing mode |

CMD_SONIC = "CMD_SONIC"

Ultrasonic distance measurement.

| App Command | Action |
|------------------|---------------------------|
| CMD_SONIC#data\n | Enable ultrasonic ranging |

In CMD_MODE#1 and CMD_MODE#2 modes, the car sends ultrasonic distance data to the host (client).