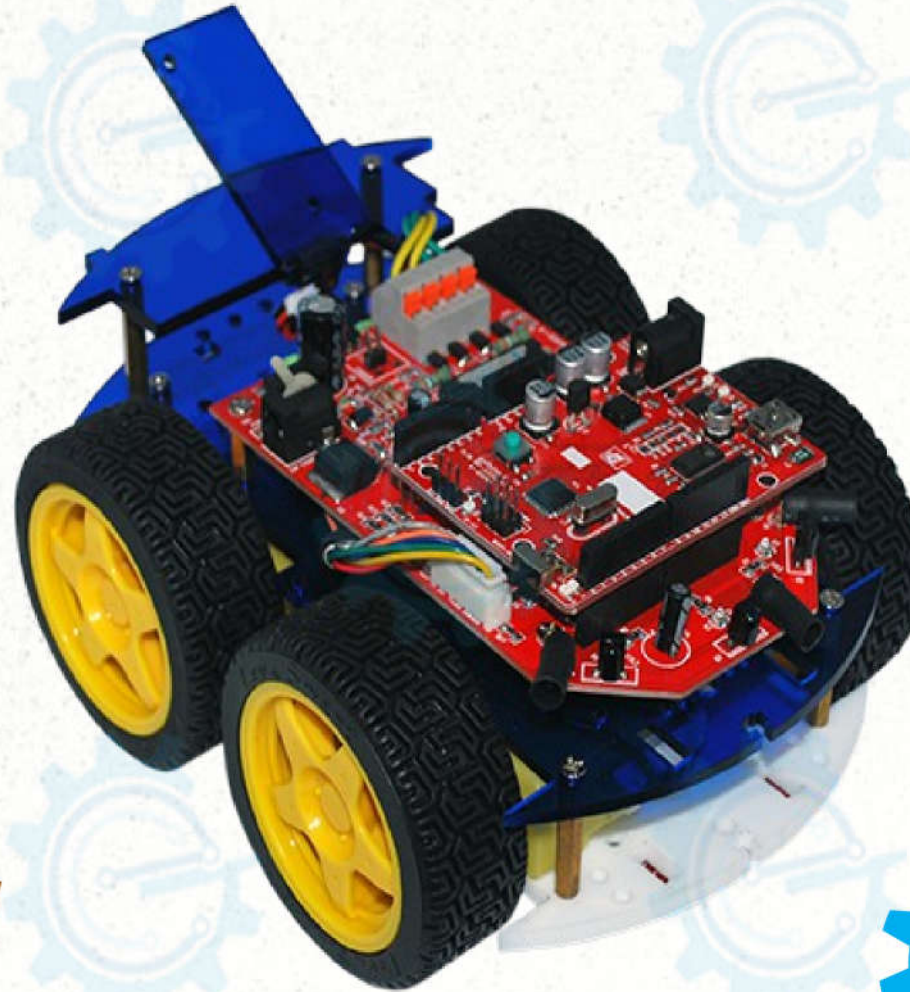




E-BOT TECHNICAL MANUAL



*Getting Started
in Mobile Robot*





Standard

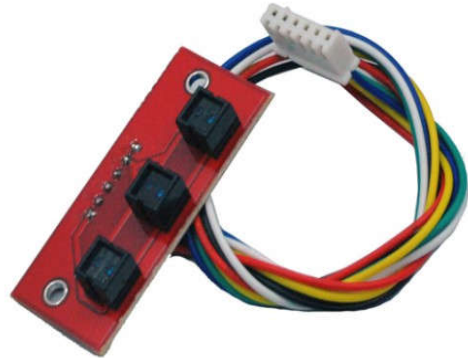
- Line Tracker
- Obstacle avoidance
 - 4-wheels

The e-Gizmo e-BOT 4x4 Standard or Line Follower
an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world. Can senses object near by using the proximity sensors, a microcontroller to run/stops its motors and then following the line track.

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by e-Gizmo Mechatronix Central

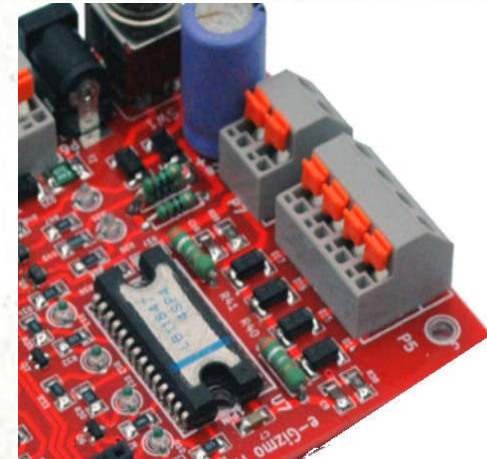
PBOT ON BOARD FEATURES:



**3-Channel IR
Line sensors**

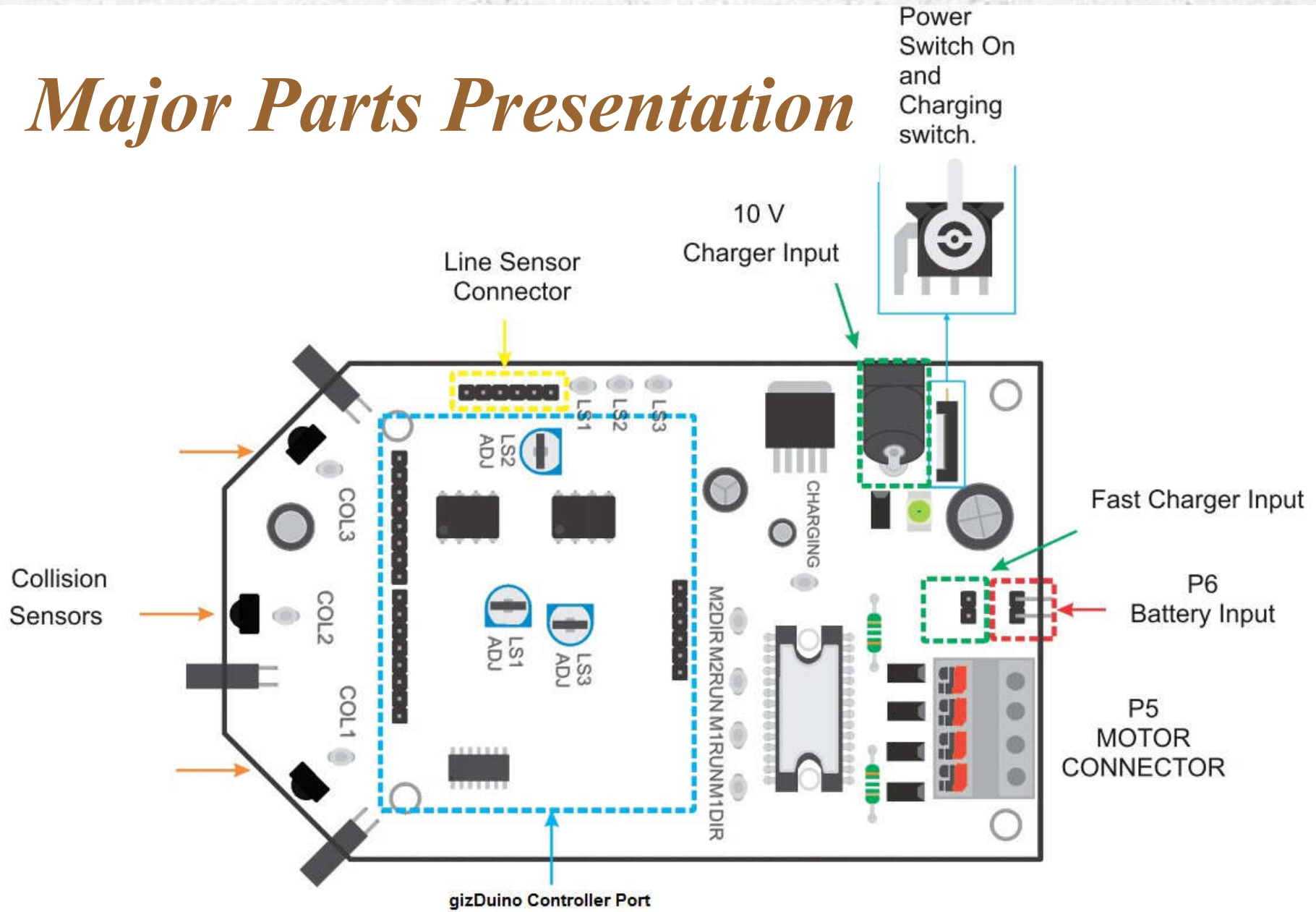


**3-Channel Collision
IR Proximity Sensor**



**2-Channel
Motor Driver**

Major Parts Presentation



Standard

ILLU switch

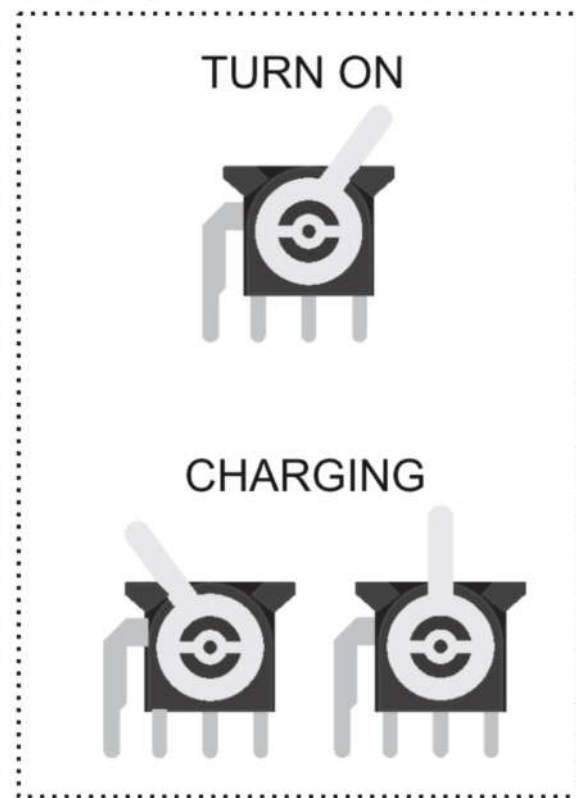


Figure 2. ILLU switch
Illustrations:

Wiring connections

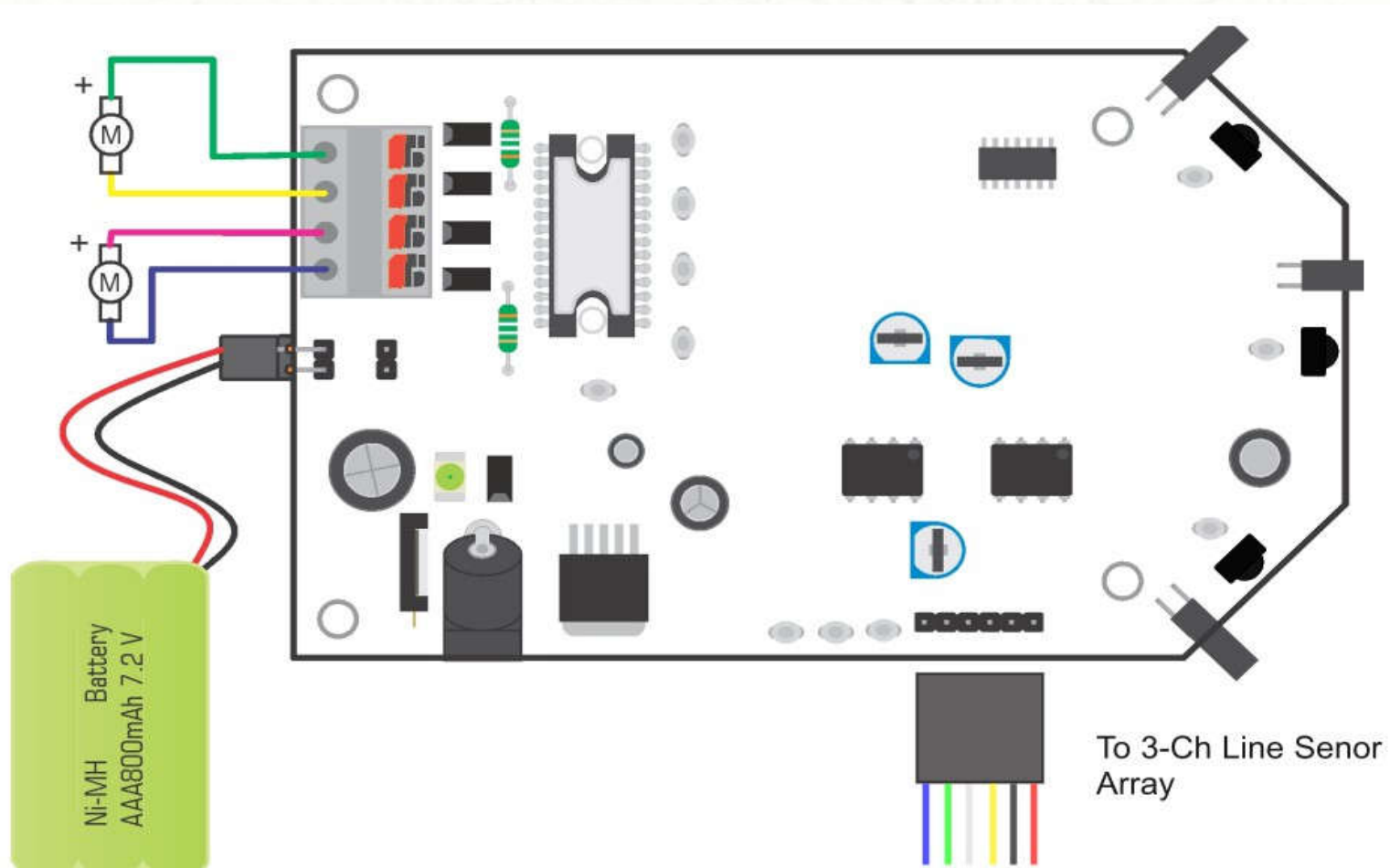


Figure 3. Motor and Battery Wiring Diagram along with the line sensor array connection illustration

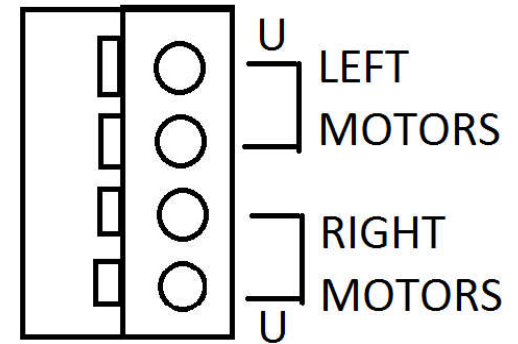
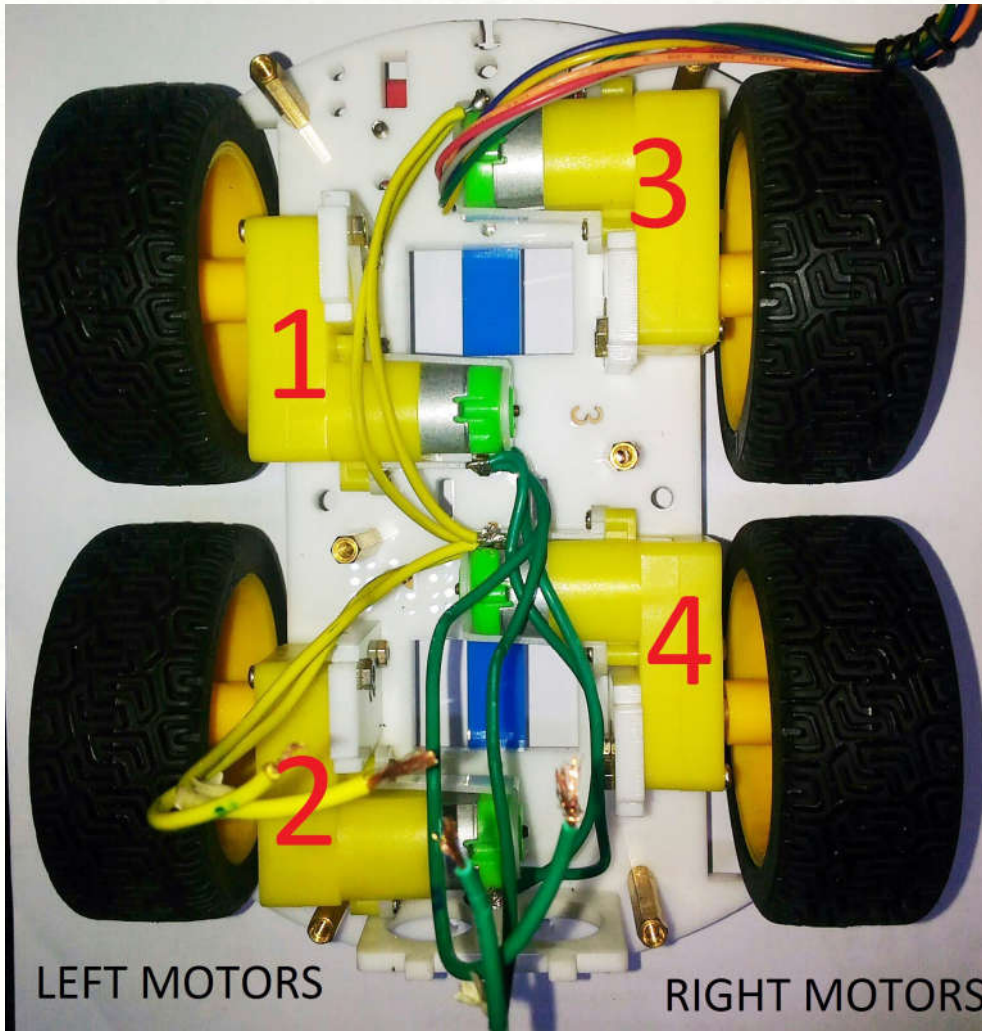
I/O Usage for Motor control

- -motor control output (default PBOT pin)
- 8 - m2dir as output high=fwd (Motor1)
- 9 - m2run as output (Motor1)
- 11 - m1dir as output high= fwd (Motor2)
- 10 - m1run as output (Motor2)

NOTE: Motor 1 is the **LEFT** motor; Motor 2 is the **RIGHT** motor.

Standard

Motors

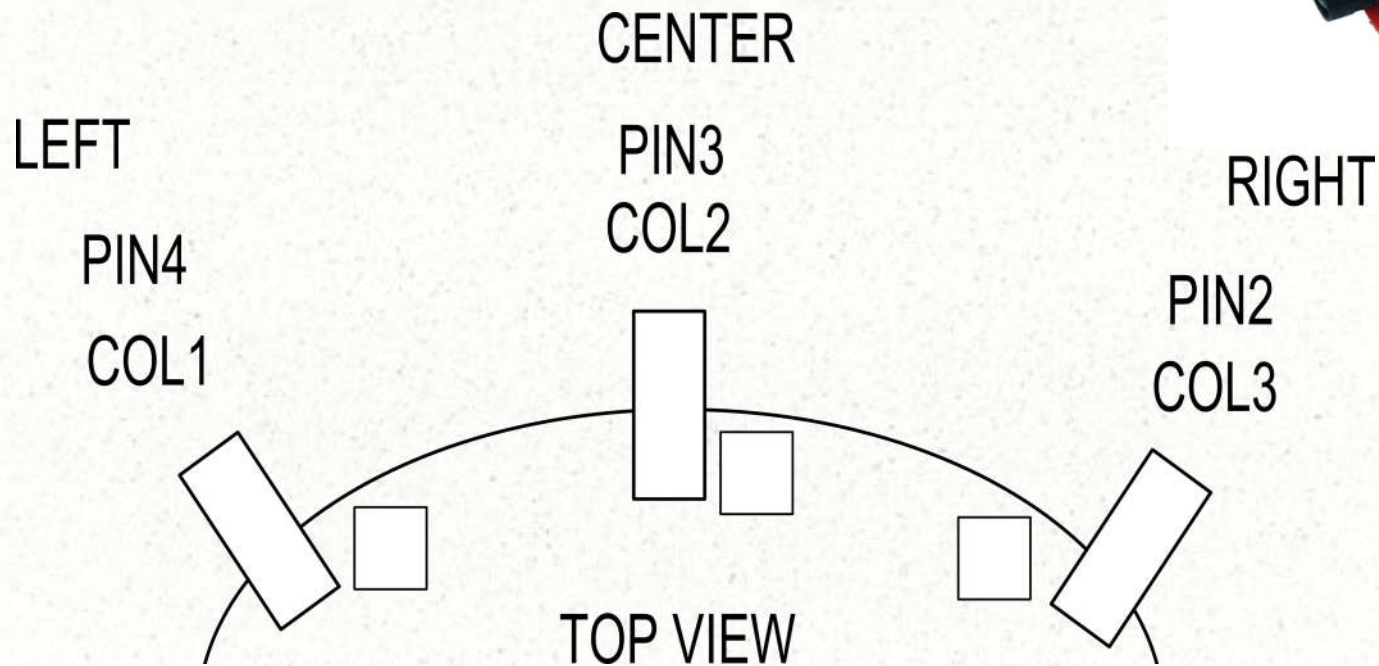


U – bottom pin wire of a motor

I/O Usage for Collision sensors

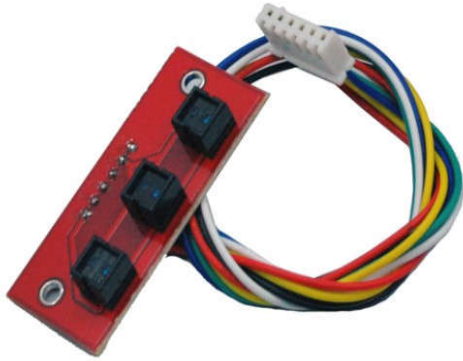
- I/O Usage
- - collision sensor inputs (not used in this demo)
- 2- colision1 as input
- 3- colision2 as input
- 4- colision3 as input

Collision Sensor



I/O Usage for Line sensors

- -line sensor inputs
- 5- linesense1 as input low on black
- 6- linesense2 as input
- 7- linesense3 as input



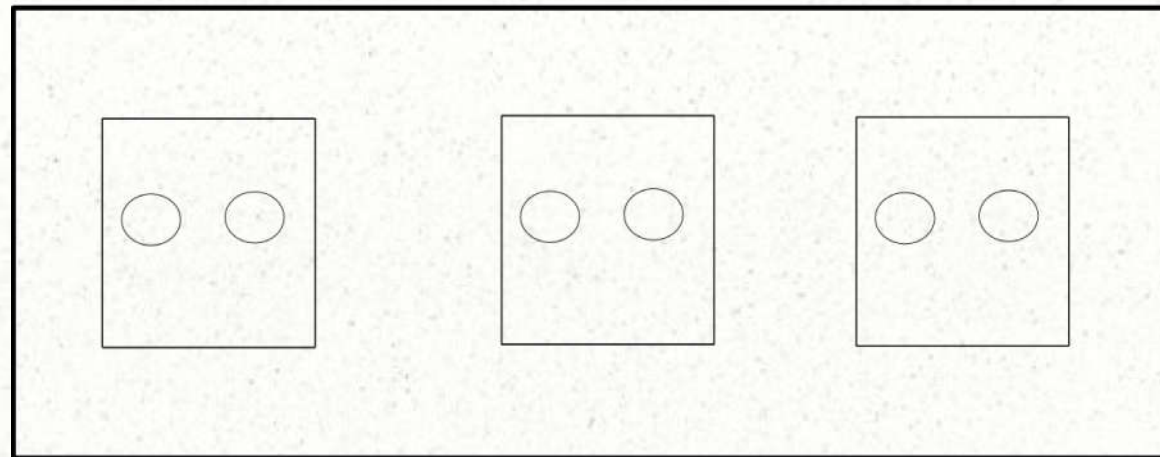
Line Sensor

Front View

Right

Center

Left



LS3

LS2

LS1

PIN7

PIN6

PIN5

Standard



Soccer bot

- Line Tracker
 - 4-wheels
- Kick the ball

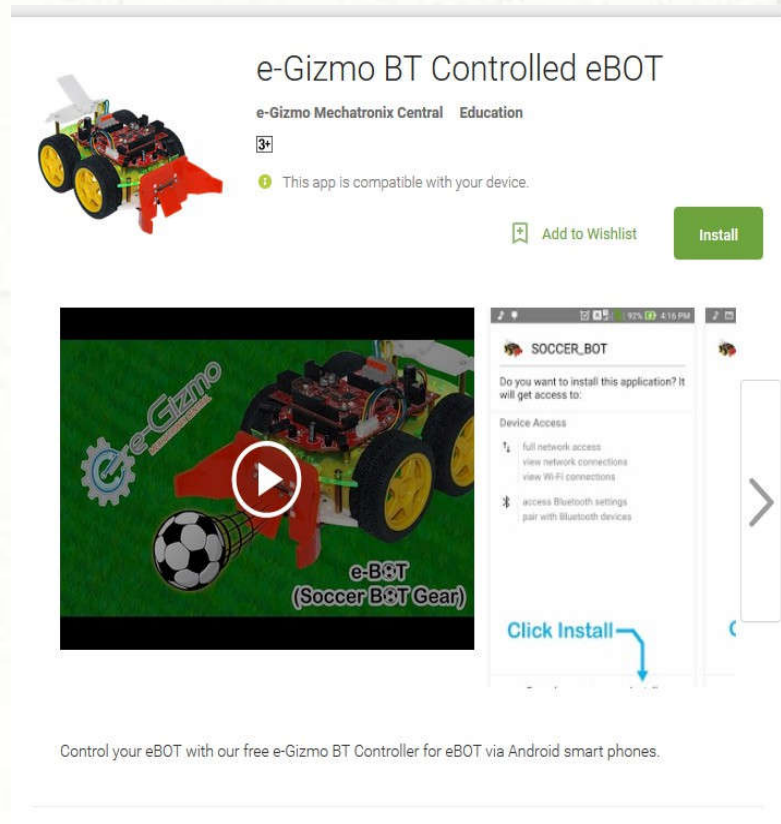
The e-Gizmo e-BOT 4x4 Soccer bot

an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world. Can control using PS2 Controller with UHF STD RX and transceiver, gizduino MCU through Serial Communication. With servo SG-90 for kicking the ball. You can download the mobile apps in google play store SOCCER_BOT.

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Soccer bot Bluetooth controlled apps

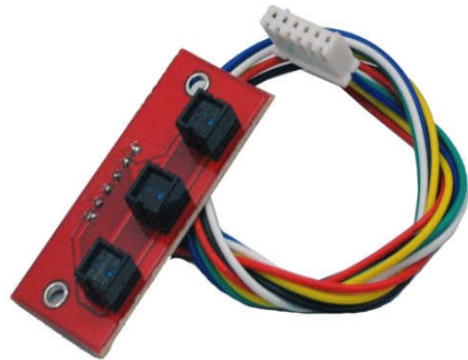


The screenshot shows the Google Play Store interface for the app "e-Gizmo BT Controlled eBOT". At the top left is a small image of the robot. The title "e-Gizmo BT Controlled eBOT" is displayed, followed by the developer "e-Gizmo Mechatronix Central" and the category "Education". A "3+" age rating is shown. A green checkmark icon indicates "This app is compatible with your device." Below this are "Add to Wishlist" and "Install" buttons. A video player shows a soccer robot on a green field with a play button overlay. To the right, a preview of the app's permissions screen is visible, titled "SOCCER_BOT", with a "Click Install" arrow pointing to the bottom. At the bottom of the screenshot, a line of text reads: "Control your eBOT with our free e-Gizmo BT Controller for eBOT via Android smart phones."

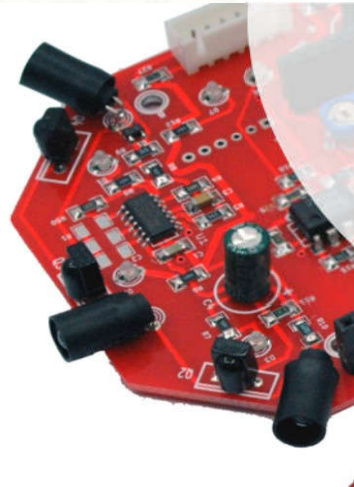
https://play.google.com/store/apps/details?id=appinventor.ai_let;playgizmobot;SOCCER_BOT

Soccer bot

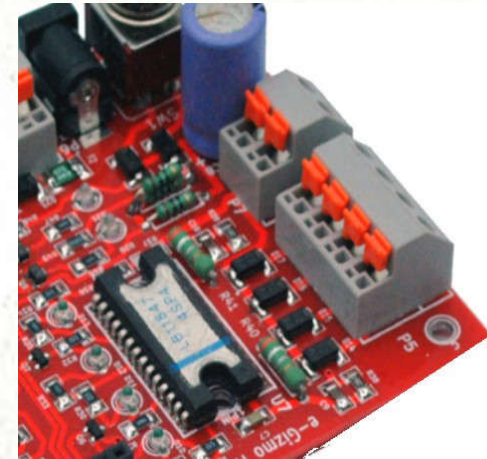
MATERIALS:



**3-Channel IR
Line sensors**



**3-Channel Collision
IR Proximity Sensor**



**2-Channel
Motor Driver**



**SG-90 servo motor
160 degrees w/
Soccer bot
accessories**

MATERIALS: (optional) For Wireless controller



PS controller

- **With UHF STD TX.**



UHF STD Rx Only

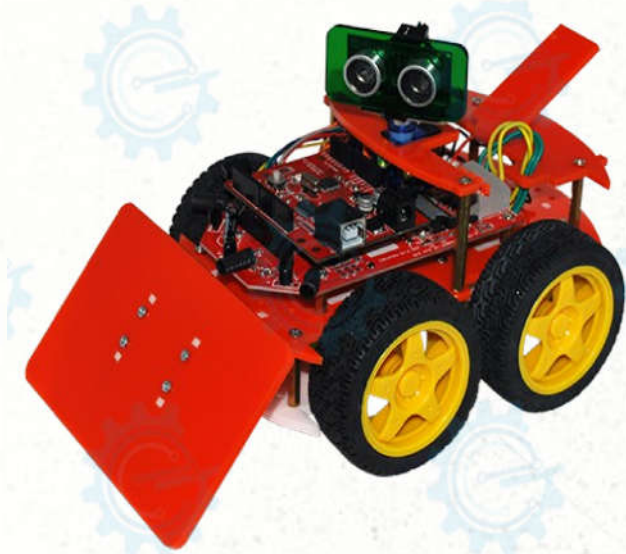
Soccer bot

I/O for UHF wireless Receiver

- GizDuino >>> UHF EX/STD (RX)
- 0- RX >>> TX
- 1 – TX >>> RX
- GND – GND >>> GND

I/O Usage for Servo motor (KICK)

- -Servo pin assignment (For Kick)
- 6 – Signal Output



Sumo bot

Line Tracker

4-wheels

Ultrasonic Distance Sensor

The e-Gizmo e-BOT 4x4 Sumo bot

an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world.

With servo SG-90 for rotating 0 - 160 deg and attached with US-100 distance

sensor for searching other opponents to push outside the ring.

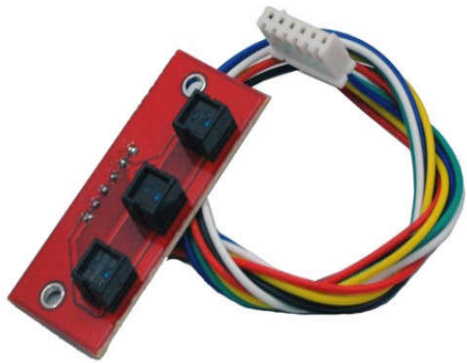
Sumo bot accessories included.

. You can download the mobile apps in google play store **SUMO_BOT**.

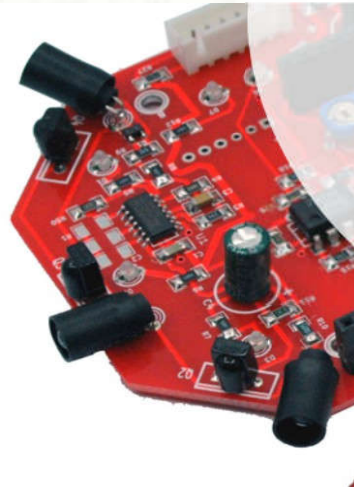
Proudly Designed and Made in the Philippines
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Sumo bot

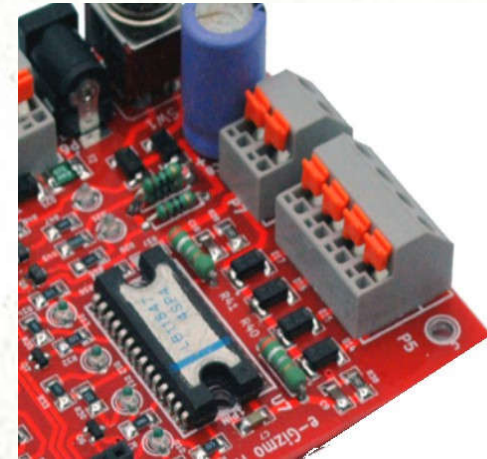
MATERIALS:



**3-Channel IR
Line sensors**



**3-Channel Collision
IR Proximity Sensor**



**2-Channel
Motor Driver**



**SG-90 servo motor
160 degrees w/
Soccer bot
accessories**

US-100

Ultrasonic Sensor

- **Distance sensor**



MATERIALS: (optional) For Wireless controller



PS controller

- **With UHF STD TX.**



UHF STD Rx Only

•
Sumo bot

Adding a Library

- (if you want to make it automatically searching for opponents and depends to your program)
- It is required to add the library for SUMOBOT
- Add *SM.h* and *NewPing.h* library (For State Machine and US-100)
- To add goto My documents>Arduino>libraries>(paste it)

I/O for UHF wireless Receiver

- GizDuino >>> UHF EX/STD (RX)
- 0- RX >>> TX
- 1 – TX >>> RX
- GND – GND >>> GND

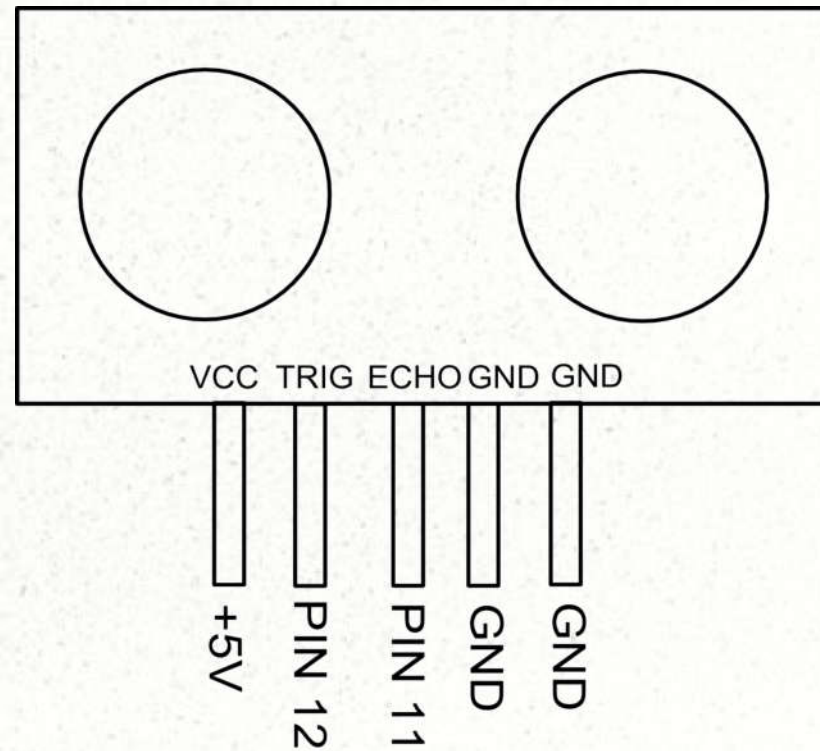
I/O Usage for Servo motor

- -Servo pin assignment
- 7 – Signal Output

I/O Usage for US-100 distance sensor

- -US-100 pin assignment
- 12 – Trigger
- 3 – Echo
- Vcc - +5V input supply
- Gnd - Ground

Ultrasonic sensor



Sumo bot



Gripper bot

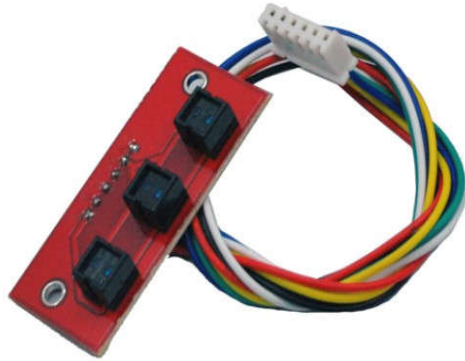
Line Tracker
4-wheels
To grab an object

The e-Gizmo e-BOT 4x4 with Gripper bot
an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world. Can control using PS2 Controller with UHF STD RX and transceiver, gizDuino MCU through Serial Communication. With 2 servos SG-90 for rotating 0 - 160 deg (twisting) and (grabbing/holding).

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Gripper bot



**3-Channel IR
Line sensors**

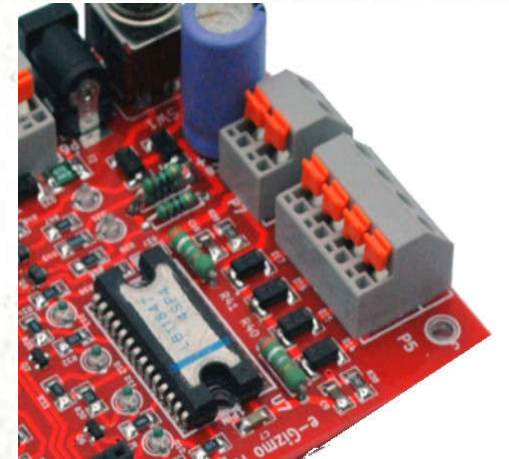


**SG-90 servo motor
160 degrees w/
Soccer bot
accessories**

MATERIALS:



**3-Channel Collision
IR Proximity Sensor**



**2-Channel
Motor Driver**

- Gripper with**
- **SG-90 servo 160 deg**



MATERIALS: (optional) For Wireless controller



PS controller

- **With UHF STD TX.**



UHF STD Rx Only

Gripper bot

I/O for UHF wireless Receiver

- GizDuino >>> UHF EX/STD (RX)
- 0- RX >>> TX
- 1 – TX >>> RX
- GND – GND >>> GND

I/O Usage for Servo motor

- -Servo pin assignment
- 4 – Signal Output (For Gripper)
- 5 – Signal Output (For Twist)



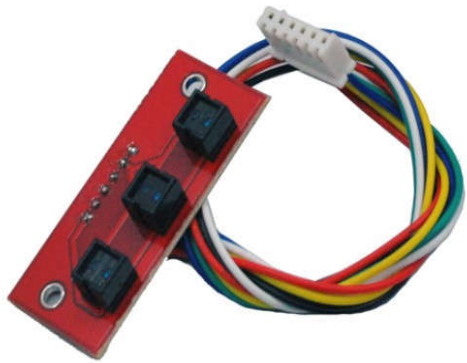
Maze bot

Line Tracker
4-wheels
Obstacle avoidance

The e-Gizmo e-BOT 4x4 Maze bot
an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world.
With servo SG-90 for rotating 0 - 160 deg and attached with US-100 distance sensor for searching other opponents or avoiding objects.

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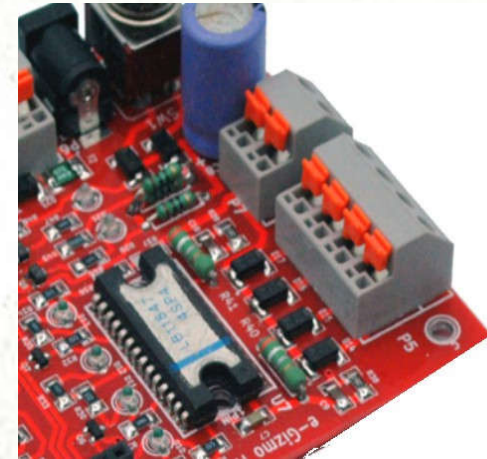


**3-Channel IR
Line sensors**

MATERIALS:



**3-Channel Collision
IR Proximity Sensor**



**2-Channel
Motor Driver**



**SG-90 servo motor
160 degrees w/
Soccer bot
accessories**

US-100

Ultrasonic Sensor

- **Distance sensor**



MATERIALS: (optional) For Wireless controller



PS controller

- **With UHF STD TX.**



UHF STD Rx Only

•
Maze bot

Adding a Library

- (if you want to make it automatically searching for opponents and depends to your program)
- It is required to add the library for SUMOBOT
- Add *SM.h* and *NewPing.h* library (For State Machine and US-100)
- To add goto My documents>Arduino>libraries>(paste it)

I/O for UHF wireless Receiver

- GizDuino >>> UHF EX/STD (RX)
- 0- RX >>> TX
- 1 – TX >>> RX
- GND – GND >>> GND

I/O Usage for Servo motor

- -Servo pin assignment
- 6 – Signal Output

I/O Usage for US-100 distance sensor

- -US-100 pin assignment
- 12 – Trigger
- 3 – Echo
- Vcc - +5V input supply
- Gnd - Ground



E-Bot with EGRA **Robotic**

4-wheels
EGRA Robotic Arm
(For Pick and Place)

The e-Gizmo e-BOT 4x4 with EGRA Robotic Arm
an Entry-Level Mobile Robot

Easy-to-use, in All-in-one Function on Programmable Robot (PBot) board a mobile robot platform to interact with the real world. Can control using PS2 Controller with UHF STD RX and transceiver, gizduino MCU through Serial Communication. With EGRA Robotic ARM for Pick and Place the objects.

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**2channel Tiny
motor driver**

MATERIALS:



Gizduino PLUS w/

- **ATmega644P**



Sensor shield



EGRA Robotic ARM

**E-Bot with EGRA
Robotic**

MATERIALS: (optional) For Wireless controller



PS controller

- **With UHF STD TX.**



UHF STD Rx Only

•
E-Bot with EGRA
Robotic

I/O for UHF wireless Receiver

- GizDuino >>> UHF EX/STD (RX)
- 0- RX >>> TX
- 1 – TX >>> RX
- GND – GND >>> GND

E-Bot with EGRA
Robotic

I/O Usage for Motor control

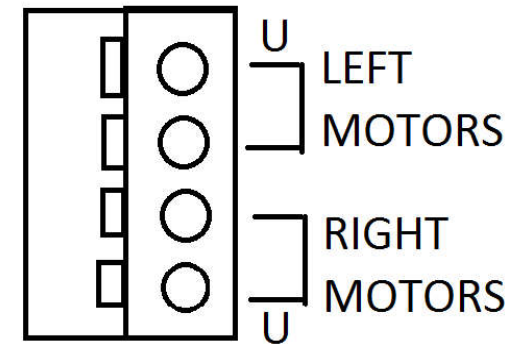
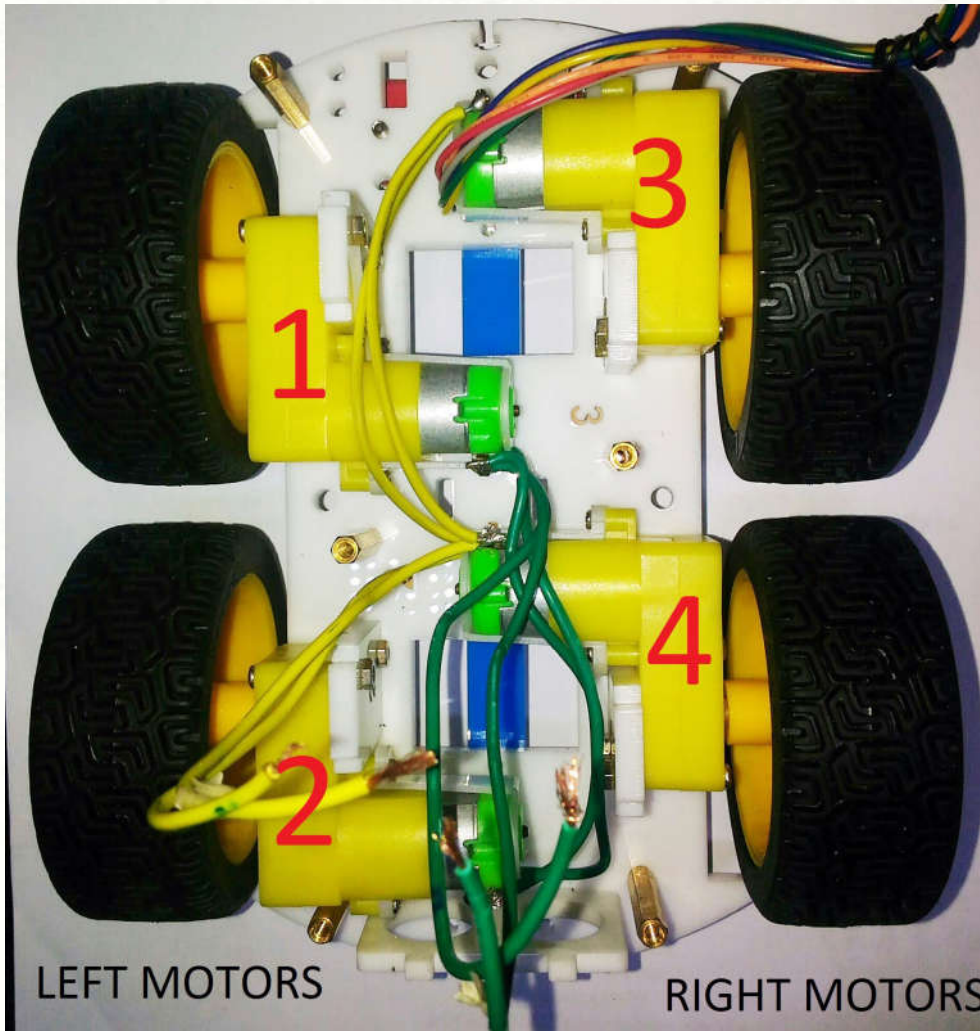
- -motor control output (default PBOT pin)
- 8 - m2dir as output high=fwd (Motor1)
- 9 - m2run as output (Motor1)
- 11 - m1dir as output high= fwd (Motor2)
- 10 - m1run as output (Motor2)

E-Bot with EGRA
Robotic

NOTE: Motor 1 is the **LEFT** motor; Motor 2 is the **RIGHT** motor.

E-Bot with EGRA Robotic

Motors



U – bottom pin wire
of a motor

I/O Usage for Servo motors

- Using gizDuino PLUS MCU Board
- 3 – Servo1 (for Gripper)
- 5 – Servo2
- 6 – Servo 3
- 7 – Servo 4 (for base)

E-Bot with EGRA
Robotic



Thank you!

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