

# **FINAL INDENTATION WITH DETAILS OF THE COMPONENTS IN THE BILL OF MATERIALS**

Conveyor Robot using Collision Avoidance (COBOT):

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# 1. Microcontroller

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Model: Raspberry Pi 4 4GB RAM



- **Link**

- 1) <https://hallroad.org/raspberry-pi-4-model-b-with-4-gb-ram-in-pakistan.html>
- 2) <https://www.tejar.pk/raspberry-pi-4-model-b-single-board-computer>
- 3) <https://hobbytronics.pk/product/raspberry-pi-4/>

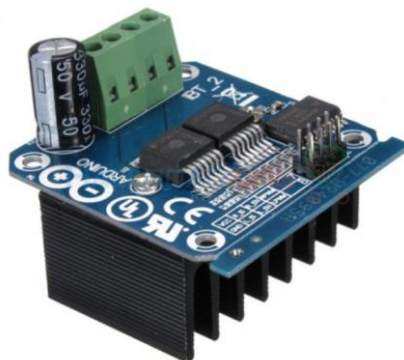
- **Quantity**

Total= 2 Nos

# 2. Motor driver

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Model: IBT2 H bridge 43 A motor driver module



Link:

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1) <https://hallroad.org/43a-h-bridge-drive-pwm-for-arduino-semiconductor-bts7960b.html>

2) <https://www.mreeco.com/ibt2-bts7960b-bts7960-43a-H-bridge-motor-driver>

3) <https://www.daraz.pk/products/ibt2-bts7960b-bts7960-43a-h-bridge-motor-driver-module-for-arduino-in-pakistan-i178496437.html>

Quantity

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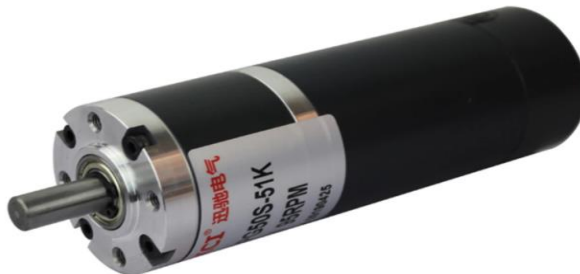
Total: 5 Nos.

### 3. DC Planetary Geared Motor

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Specification:

- 12 volts
- Speed (RPM) = 70
- Reduction Ratio – 71
- Torque = 39kg-cm or 3.9 Nm at given RPM and RRatio
- Model: XC50PG50S DC 12V



Link:

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1. [https://www.aliexpress.com/item/4001145918590.html?spm=a2g0o.detail.0.0.2f957839VimNxl&gps-id=pcDetailBottomMoreThisSeller&scm=1007.13339.169870.0&scm\\_id=1007.13339.169870.0&scm-url=1007.13339.169870.0&pvid=8f20c28d-bd12-46bd-96ac-d34eecb03945&t=gps-id:pcDetailBottomMoreThisSeller\\_scm-url:1007.13339.169870.0;pvid:8f20c28d-bd12-46bd-96ac-d34eecb03945,tp buckets:668%230%23131923%2361\\_668%230%23131923%2361\\_668%23888%23325%2320\\_668%23888%23325%2320\\_668%232846%238113%231998\\_668%232717%237566%23852\\_668%231000022185%231000066058%230\\_668%233468%2315609%23250\\_668%232846%238113%231998\\_668%232717%237566%23852\\_668%233164%239976%23660\\_668%233468%2315609%23250](https://www.aliexpress.com/item/4001145918590.html?spm=a2g0o.detail.0.0.2f957839VimNxl&gps-id=pcDetailBottomMoreThisSeller&scm=1007.13339.169870.0&scm_id=1007.13339.169870.0&scm-url=1007.13339.169870.0&pvid=8f20c28d-bd12-46bd-96ac-d34eecb03945&t=gps-id:pcDetailBottomMoreThisSeller_scm-url:1007.13339.169870.0;pvid:8f20c28d-bd12-46bd-96ac-d34eecb03945,tp buckets:668%230%23131923%2361_668%230%23131923%2361_668%23888%23325%2320_668%23888%23325%2320_668%232846%238113%231998_668%232717%237566%23852_668%231000022185%231000066058%230_668%233468%2315609%23250_668%232846%238113%231998_668%232717%237566%23852_668%233164%239976%23660_668%233468%2315609%23250)
2. [https://www.alibaba.com/product-detail/42mm-diameter-12v-high-torque-100kg\\_60821758825.html?spm=a2700.galleryofferlist.normal\\_offer.d.title.44875e87jPj761](https://www.alibaba.com/product-detail/42mm-diameter-12v-high-torque-100kg_60821758825.html?spm=a2700.galleryofferlist.normal_offer.d.title.44875e87jPj761)
3. <https://no.rs-online.com/web/p/dc-motors/1816489/>

Quantity

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Total: 5 Nos

## 4. Battery

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Model: Amstron 12V 9Ah VRLA SLA Battery - F2 Terminal

12 Volt 9 Amp Hours

6-Cell Construction

F2 Terminals (1/4")



Link:

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- <https://www.amstron.com/amstron-12v-9ah-vrla-sla-battery-f2-terminal/>
- <https://www.daraz.pk/products/12v-9ah-battery-long-i1486591.html>
- [http https://www.daraz.pk/products/12v-9ah-battery-long-i1486591.htmls://w11stop.com/long-lead-acid-battery-12v-9ah](http://https://www.daraz.pk/products/12v-9ah-battery-long-i1486591.htmls://w11stop.com/long-lead-acid-battery-12v-9ah)

Quantity

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**Total: 2 Nos.**

## 5. Mecanum Wheels

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Model: 100mm 4 Mecanum wheels Load Capacity 30kg with Bearing

360° movement in all directions.

Load Capacity: 30kg/Set.

Make four-wheel-drive smart car realize left and right translation, large-angle drift, oblique 45° direction movement, square track movement and other movement modes.



Link:

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1. <https://www.casterbot.com/p/casterbot-100mm-mecanum-wheels-load-capacity-30kg4pcs-pack/>
2. <https://www.robotshop.com/en/100mm-mecanum-wheel-set.html>
3. <https://www.joom.com/en/products/5ca907271436d401017f6ce3>

Quantity

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**Total: 4 Nos.**

## 5. Couplings

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Model: Shaft Rigid Motor Wheel Coupling Coupler 5mm to **8mm** Aluminum alloy Casing With Screw Blue (Pack of 4)

Connection diameter: 5 x 8mm

Top Thread Size: M4

Through Angle: 180 Degree

Required=8mm



Link:

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1. <https://www.daraz.pk/products/shaft-rigid-motor-wheel-coupling-coupler-5mm-to-8mm-aluminum-alloy-casing-with-screw-bluepack-of-4-i160904039.html>
2. [https://www.alibaba.com/product-detail/CNC-machining-45-steel-Drive-shaft\\_62394048236.html?spm=a2700.7724857.normal\\_offer.d\\_title.1a7f1e44lg76i7](https://www.alibaba.com/product-detail/CNC-machining-45-steel-Drive-shaft_62394048236.html?spm=a2700.7724857.normal_offer.d_title.1a7f1e44lg76i7)
3. [https://www.alibaba.com/product-detail/Motor-Shaft-Coupling-Gg25-Silver-12mm\\_62387362399.html?spm=a2700.7724857.normal\\_offer.d\\_title.1a7f1e44vXUF13](https://www.alibaba.com/product-detail/Motor-Shaft-Coupling-Gg25-Silver-12mm_62387362399.html?spm=a2700.7724857.normal_offer.d_title.1a7f1e44vXUF13)

Quantity

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Total: 4 Nos.

## 6. Encoder

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**8mm** Inner Hole Diameter

Model: Industrial Encoder HEDS-9100# B00

Two-channel 1000 Lines Read Head + Code Disk + Housing Complete  
Se



Link:

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1. [https://www.aliexpress.com/item/10000057073792.html?spm=a2g0o.productlist.0.0.11c32d419wtfOh&algo\\_pvid=93c5c738-4808-46b0-98bf-04a988cf9fce&algo\\_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-12&btid=0b0a556b16182439046468713e5d67&ws\\_ab\\_test=searchweb0\\_0.searchweb201602\\_searchweb201603](https://www.aliexpress.com/item/10000057073792.html?spm=a2g0o.productlist.0.0.11c32d419wtfOh&algo_pvid=93c5c738-4808-46b0-98bf-04a988cf9fce&algo_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-12&btid=0b0a556b16182439046468713e5d67&ws_ab_test=searchweb0_0.searchweb201602_searchweb201603)
2. [https://www.aliexpress.com/item/1005001406563730.html?spm=a2g0o.productlist.0.0.4efa54e3KSPatR&algo\\_pvid=73004325-dcd7-4a80-8aa9-04a988cf9fce&algo\\_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-37&btid=0b0a556b16182439046468713e5d67&ws\\_ab\\_test=searchweb0\\_0.searchweb201602\\_searchweb201603](https://www.aliexpress.com/item/1005001406563730.html?spm=a2g0o.productlist.0.0.4efa54e3KSPatR&algo_pvid=73004325-dcd7-4a80-8aa9-04a988cf9fce&algo_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-37&btid=0b0a556b16182439046468713e5d67&ws_ab_test=searchweb0_0.searchweb201602_searchweb201603)
3. [https://www.aliexpress.com/item/32852627200.html?spm=a2g0o.productlist.0.0.4efa54e3KSPatR&algo\\_pvid=73004325-dcd7-4a80-8aa9-04a988cf9fce&algo\\_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-37&btid=0b0a556b16182439046468713e5d67&ws\\_ab\\_test=searchweb0\\_0.searchweb201602\\_searchweb201603](https://www.aliexpress.com/item/32852627200.html?spm=a2g0o.productlist.0.0.4efa54e3KSPatR&algo_pvid=73004325-dcd7-4a80-8aa9-04a988cf9fce&algo_expid=73004325-dcd7-4a80-8aa9-04a988cf9fce-37&btid=0b0a556b16182439046468713e5d67&ws_ab_test=searchweb0_0.searchweb201602_searchweb201603)

Quantity

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Total: 5 Nos.

## 7. LIDAR Sensor

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Model: Benewake - LIDAR Laser Range Finder TF02/Pro **40Meter (2 Sensors)**

More Information

Part Number	TF02/Pro
Manufacturer	Benewake
Weight (KG)	0.020000



Link:

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1. <https://www.instock.pk/sensor/level-sensors/lidar-range-finder/benewake-lidar-led-rangefinder-tf02-ip6.html>
2. <https://www.aliexpress.com/i/4000845746625.html>
3. <https://www.dfrobot.com/product-1599.html>

Quantity

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Total: 2 Nos.

## 8. Power Bank

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Model: Power Bank - 20000mAh

Powerbank with 20000mAh capacity



### Link:

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1. <https://www.qmart.pk/aukey-usb-c-power-bank-20000mAh-price-in-pakistan>
2. <https://mistore.pk/products/mi-power-bank-18w-fast-charge-20000-mah>
3. <https://consumer.huawei.com/en/accessories/qc-powerbank-20000/>

### Quantity

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**Total: 2 Nos**