SNEAK PEEK

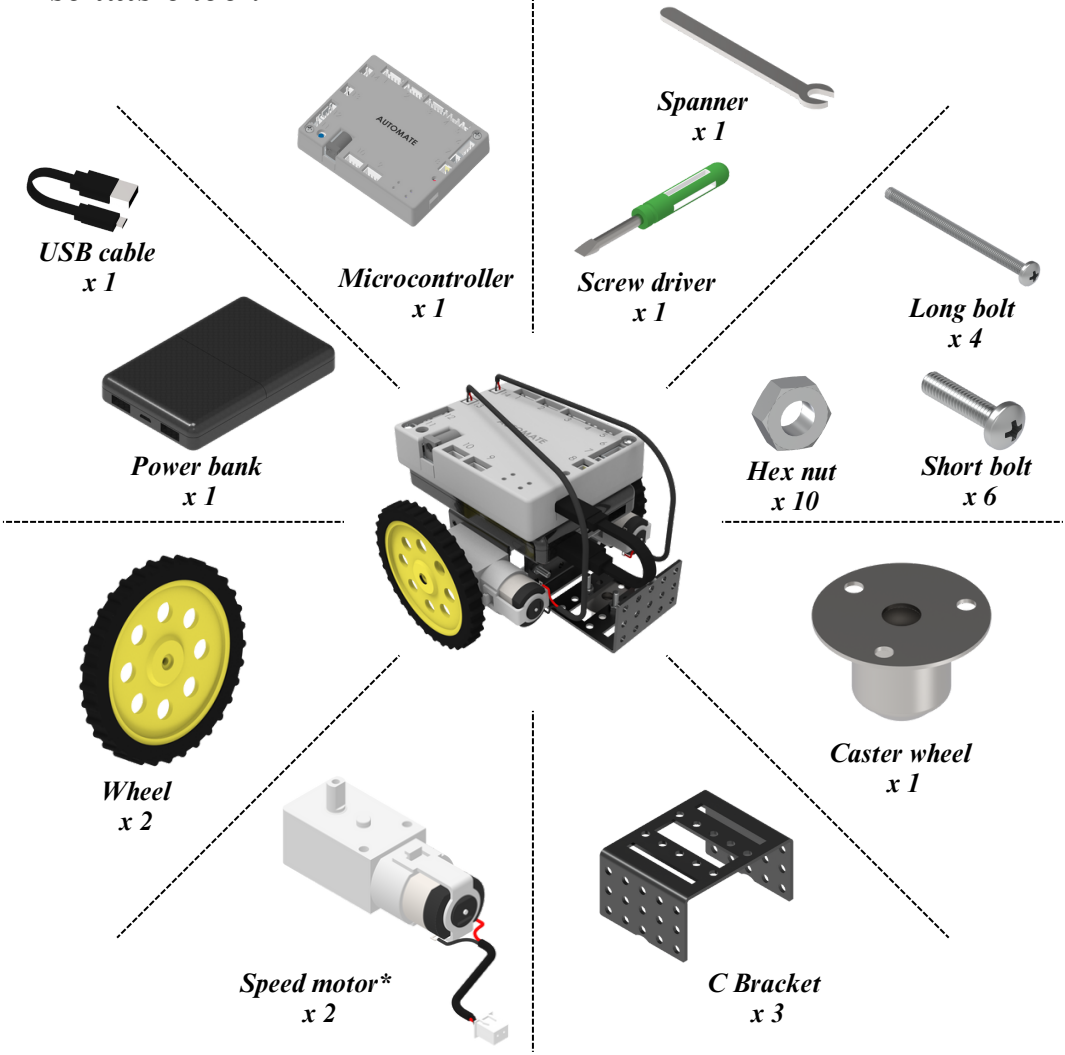
REMOTE CONTROLLED CAR

"Automate RC car is a car that you can control by using a remote."

Mission

Build your own RC car with metal parts, wheels, caster wheel & speed motors, and control it by yourself.

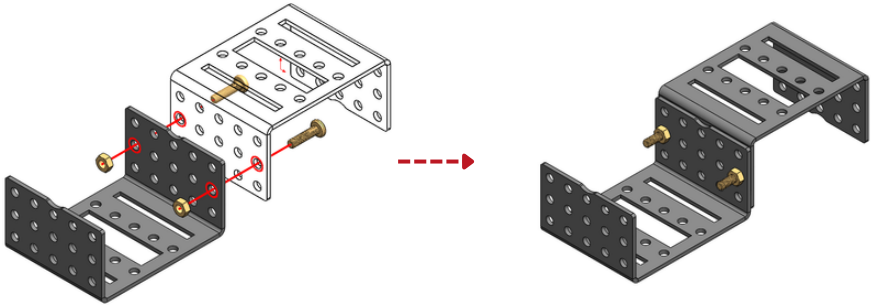
Arsenals check



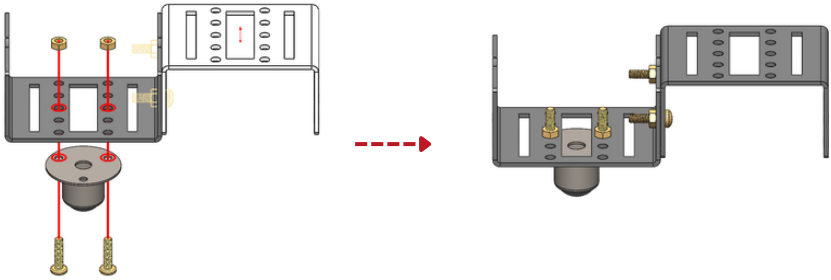
*Learn Fact : *Speed motor gives the rotational motion to the wheels to make the unit move forward or reverse direction.*

LET'S BUILD !

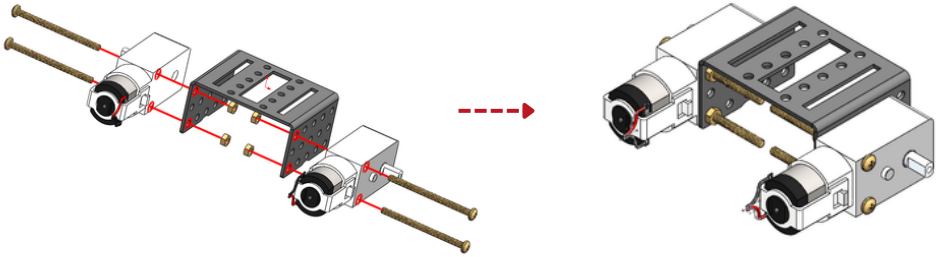
1 *Assemble two C-Brackets with the help of short bolts and nuts.*



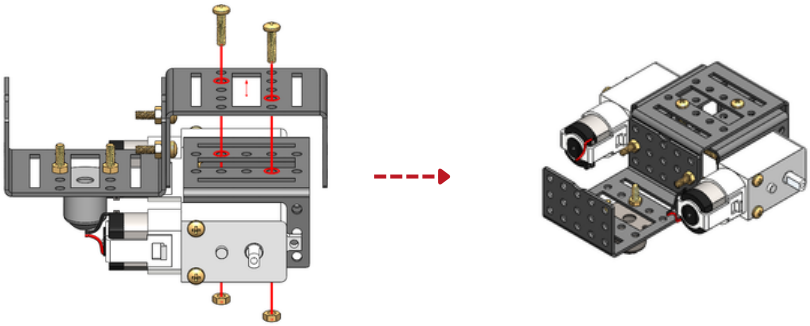
2 *Assemble the Caster wheel to the C-bracket (sub-assembly) which is assembled in step-1 using short bolts and nuts.*



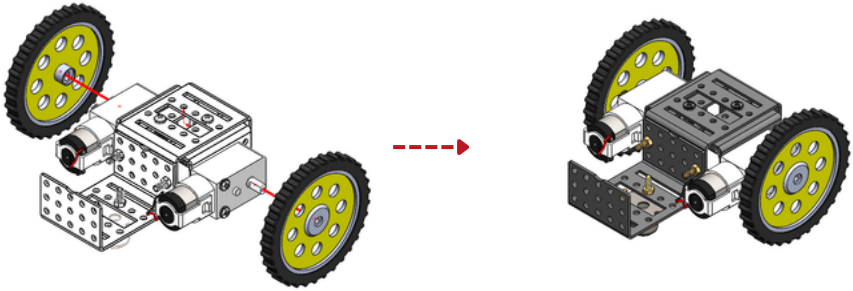
3 *Assemble speed motors to another C bracket with the help of long bolts and nuts.*



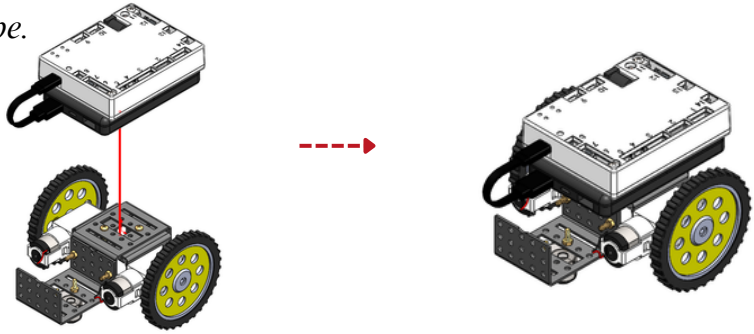
4 *Assemble the sub-assemblies done in step 2 and step 3 using short bolts and nuts.*



5 *Assemble wheels to each speed motor, before assembling them check the orientation of the wheel slot with the motor extrusion.*



6 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



Note :** **Connect speed motors and the power source to the Microcontroller unit by referring Microcontroller connections manual.

OBSTACLE AVOIDANCE ROBOT

"Automate Obstacle avoidance robot will get deflected when it detects an object in its path."

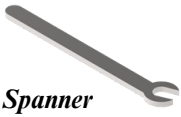
Mission

Build your own OAR with metal parts, wheels, caster wheel, speed motors & distance sensor, and make it deviate when it detects an object.

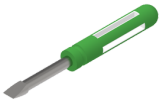
Arsenals check

USB cable
x 1

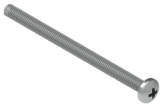
Microcontroller
x 1



Spanner
x 1

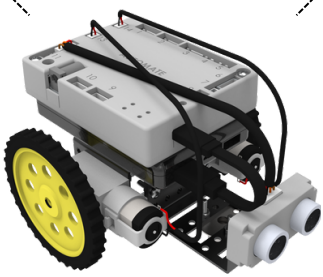


Screw driver
x 1



Long bolt
x 4

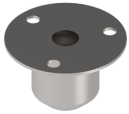
Power bank
x 1



Hex nut
x 12

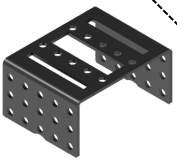
Short bolt
x 8

Wheel
x 2

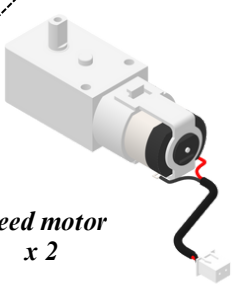


Caster wheel
x 1

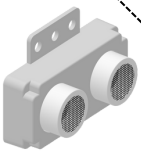
4-Pin wire
x 1



C Bracket
x 3



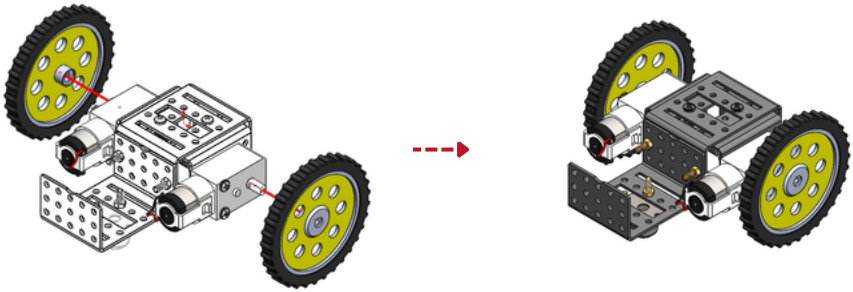
Speed motor
x 2



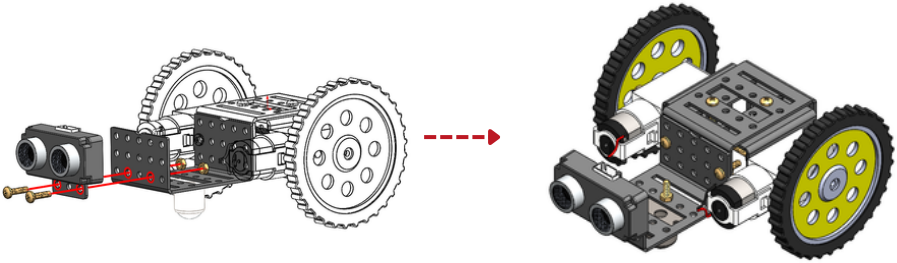
Distance sensor*
x 1

*Learn Fact : *Distance sensor will detect the object at a distance in its path by sending and receiving ultrasonic waves(high-frequency waves).*

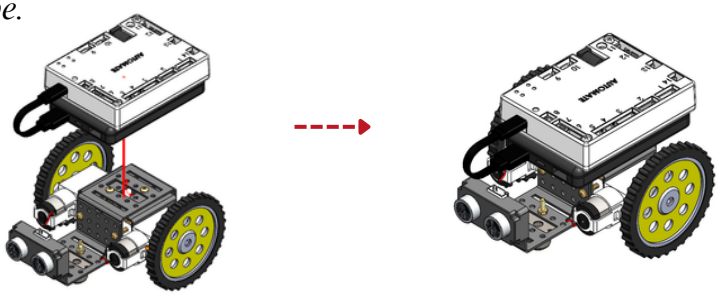
1 *Follow the assembly steps given for RC Car until step 5.*



2 *Assemble the distance sensor to the sub-assembly which is assembled in step 1 using short bolts and nuts.*



3 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



***Note :** Connect speed motors, sensors, and the power source to the microcontroller unit by referring microcontroller connections manual.*

FAIL-SAFE OAR

"Fail Safe OAR is similar to OAR with an additional Limit Switch."

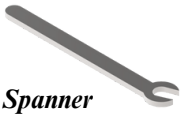
Mission

Build your Fail Safe OAR with metal parts, wheels, caster wheel, speed motors distance sensor & Limit switch, and make it deviate when it detects or hits an object.

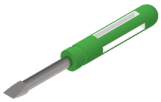
Arsenals check

USB cable
x 1

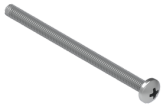
Microcontroller
x 1



Spanner
x 1

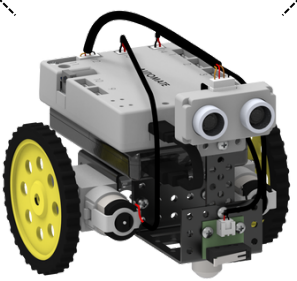


Screw driver
x 1



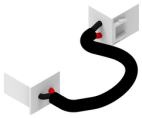
Long bolt
x 4

Power bank
x 1



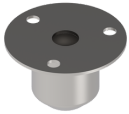
Hex nut
x 14

Short bolt
x 10

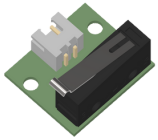


2-Pin wire
x 1

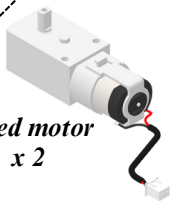
Wheel
x 2



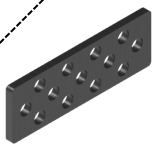
Caster wheel
x 1



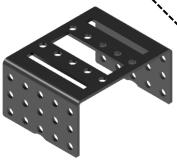
Limit switch*
x 1



Speed motor
x 2

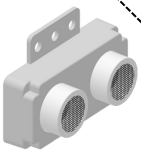


Short arm
x 1



C Bracket
x 3

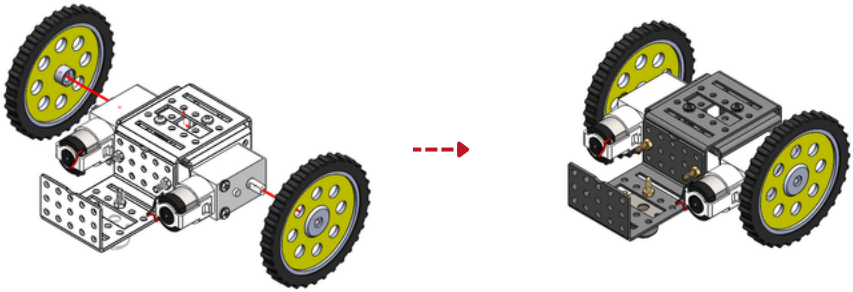
4-Pin wire
x 1



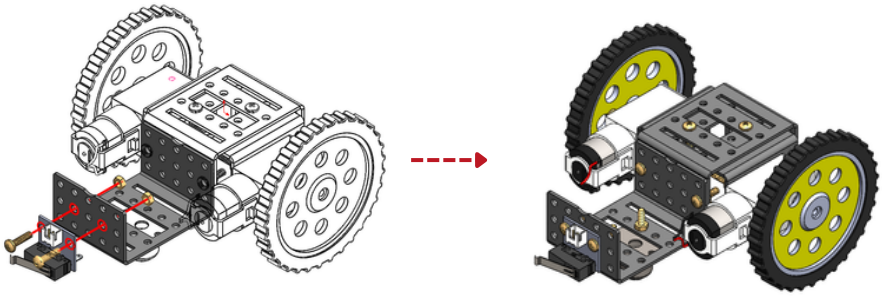
Distance sensor
x 1

Learn Fact :** **Limit Switch sends a voltage signal to the microcontroller when it gets triggered/pressed.

1 *Follow the assembly steps given for RC Car until step 5.*



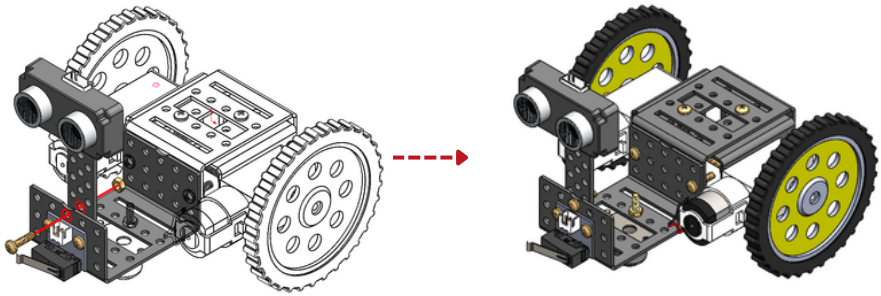
2 *Assemble the limit switch to the sub-assembly which is assembled in step 1 using short bolts and nuts.*



3 *Assemble the distance sensor and the short arm with the help of short bolts and nuts.*

LET'S BUILD !

4 *Assemble the sub-assemblies done in steps 2 and step 3 using short bolts and nuts.*



5 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*

Note :** **Connect speed motors, sensors, limit switch, and power source to the microcontroller unit by referring the microcontroller connections manual.

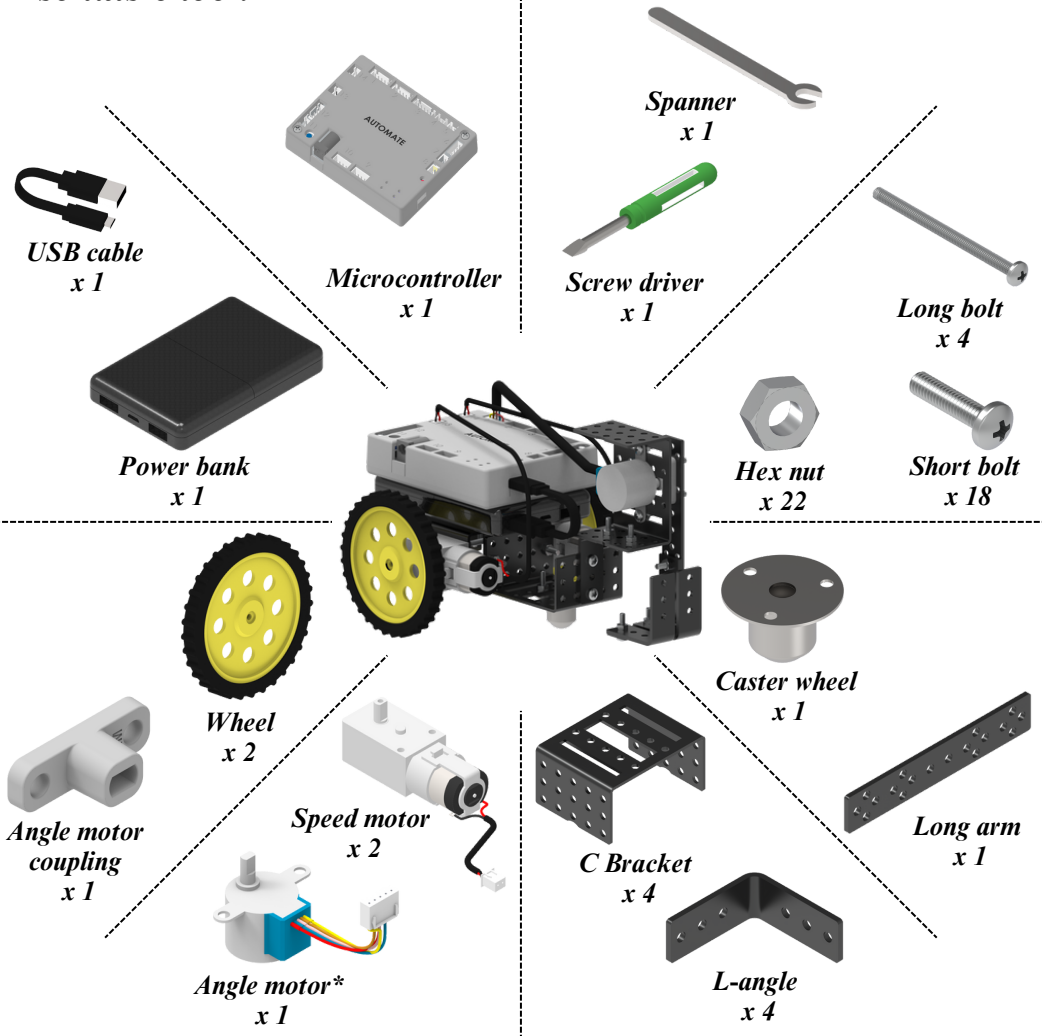
SOCCER ROBOT

"Automate Soccer robot is an RC car with a front arm which you can control by using a remote."

Mission

Build your own soccer robot with metal parts, wheels, caster wheel & speed motors, and control it by yourself.

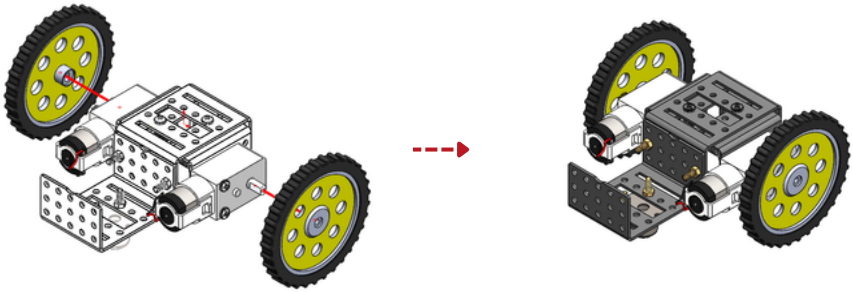
Arsenals check



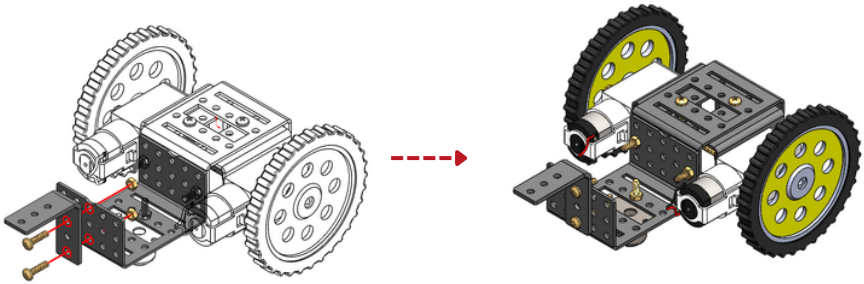
*Learn Fact : *Angle motor divides a full rotation into several equal steps. The motor's position can be commanded to move and hold at one of these steps.*

LET'S BUILD !

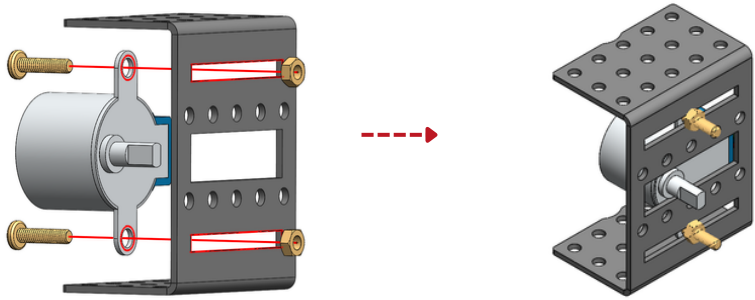
1 *Follow the assembly steps given for RC Car until step 5.*



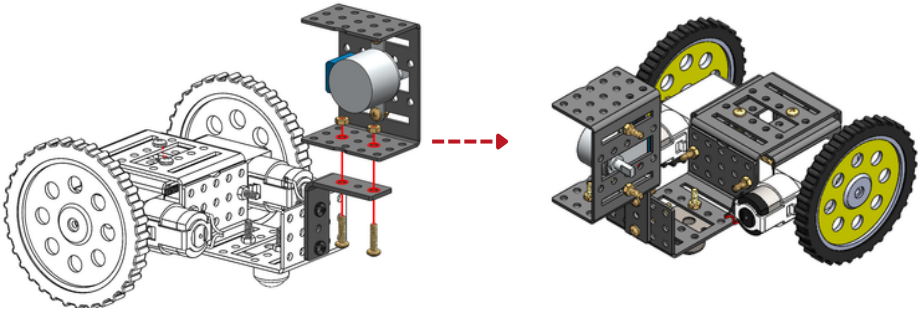
2 *Assemble the l-angle to the sub-assembly assembled done in step 1 using short bolts and nuts.*



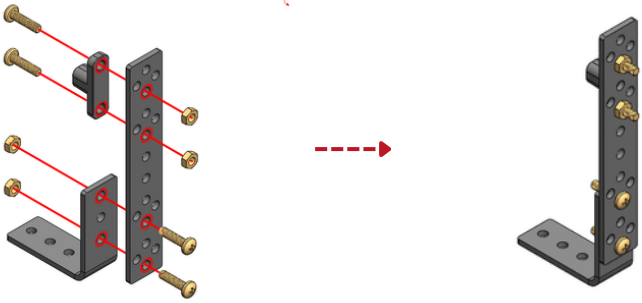
3 *Assemble angle motor to another C bracket with the help of short bolts and nuts.*



4 *Assemble the sub-assemblies done in step 2 and step 3 using short bolts and nuts.*



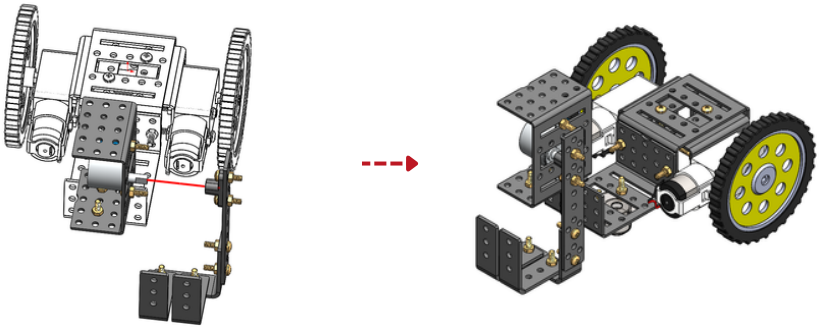
5 *Assemble long arm, l-angle, and angle motor coupling together using short bolts and nuts.*



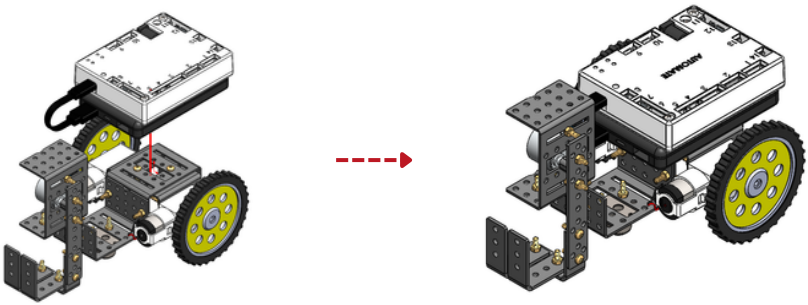
6 *Assemble two l-angles to the sub-assembly done in step-5 using short bolts and nuts.*

LET'S BUILD !

7 *Attach the sub-assembly done in step-6 to the angle motor which is in assembly done in step-4.*



8 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



***Note :** Connect speed motors, angle motor, and power source to the microcontroller unit by referring microcontroller connections manual*

LINE FOLLOWER ROBOT

"Automate Line follower follows the line as its path for motion using IR sensors."

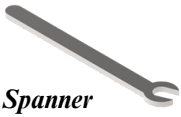
Mission

Build your own line follower with metal parts, wheels, caster wheel, IR sensors & speed motors, and make it automatic.

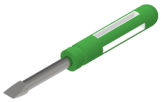
Arsenals check

USB cable
x 1

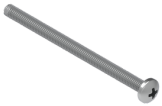
Microcontroller
x 1



Spanner
x 1

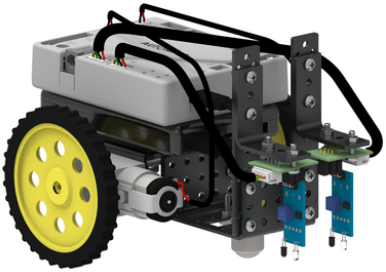


Screw driver
x 1



Long bolt
x 4

Power bank
x 1

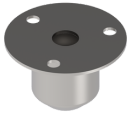


Hex nut
x 22

Short bolt
x 18

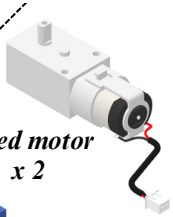
4-Pin wire
x 2

Wheel
x 2

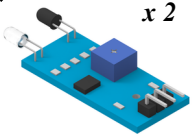


Caster wheel
x 1

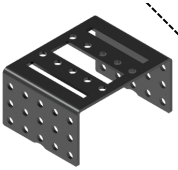
Sensor board
x 2



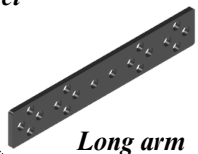
Speed motor
x 2



*IR sensor**
x 2



C Bracket
x 3



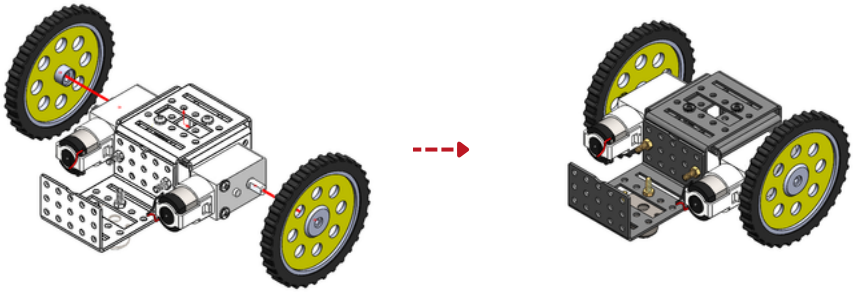
Long arm
x 2

L-angle
x 2

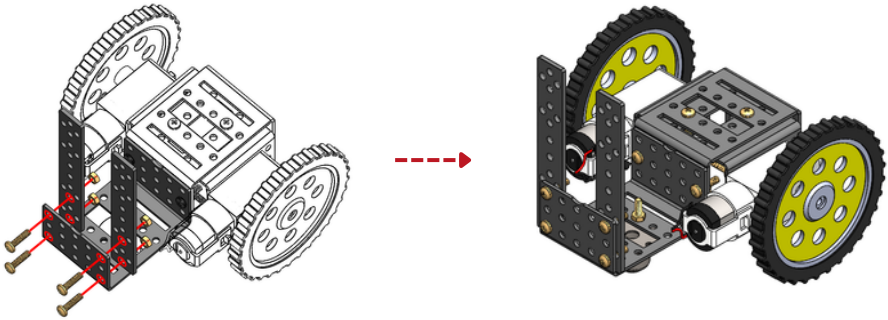
Learn Fact : *An infrared (IR) sensor is an electronic device that detects and measures infrared radiation in its surrounding environment.*

LET'S BUILD !

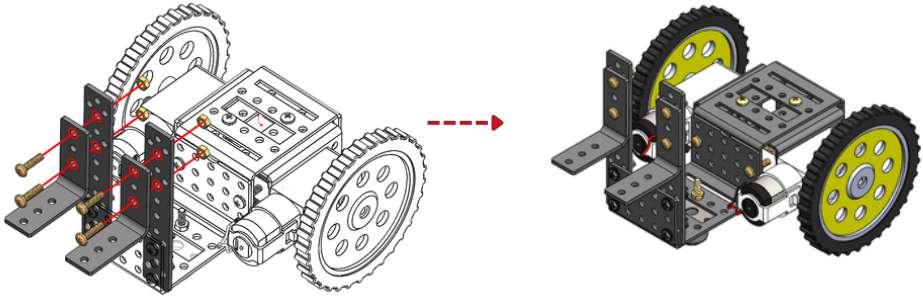
1 *Follow the assembly steps given for RC Car until step 5.*



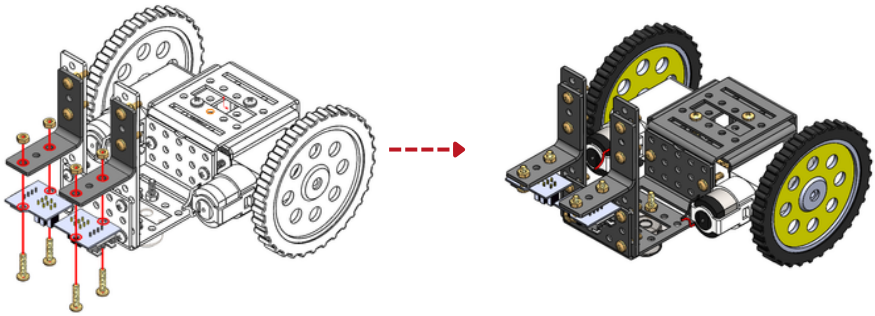
2 *Assemble two long arms to the sub-assembly assembled in step 1 using short bolts and nuts.*



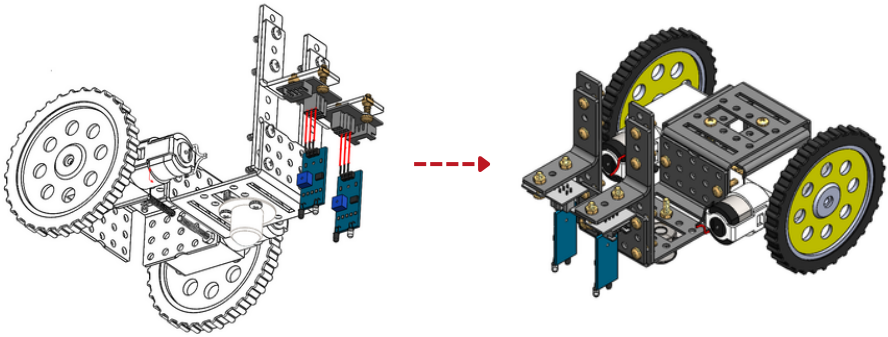
3 *Assemble two l-angles to the sub-assembly done in step 2 using short bolts and nuts.*



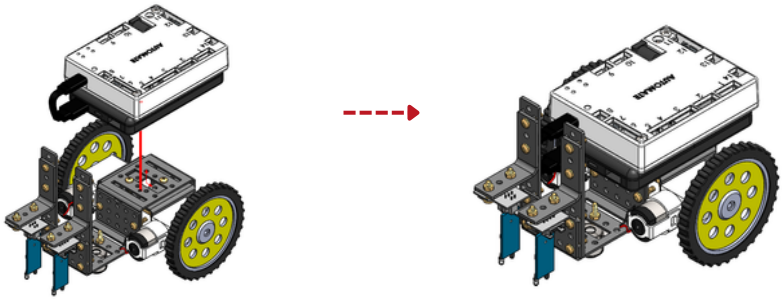
4 *Assemble two sensor boards to the sub-assembly done in step-3 using shot bolts and nuts.*



5 *Plug in IR sensors on the sensor board by checking the place for it in the sensor boards.*



6 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



Note :** **Connect speed motors, sensors, and the power source to the microcontroller unit by referring microcontroller connections manual.

RC DUMP TRUCK

"RC Dump truck is a truck which you can control by using a remote."

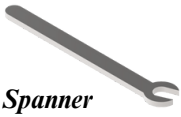
Mission

Build your car with metal parts, wheels, caster wheel & speed motors, and control it by yourself.

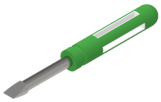
Arsenals check

USB cable
x 1

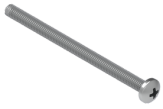
Microcontroller
x 1



Spanner
x 1

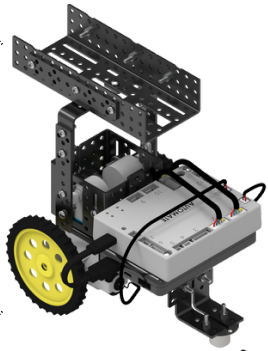


Screw driver
x 1



Long bolt
x 4

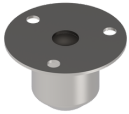
Power bank
x 1



Hex nut
x 40

Short bolt
x 36

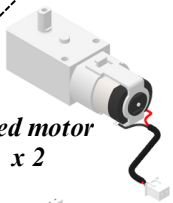
Wheel
x 2



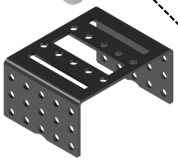
Caster wheel
x 1

Short arm
x 3

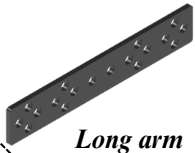
Angle motor
coupling
x 2



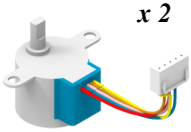
Speed motor
x 2



C Bracket
x 8



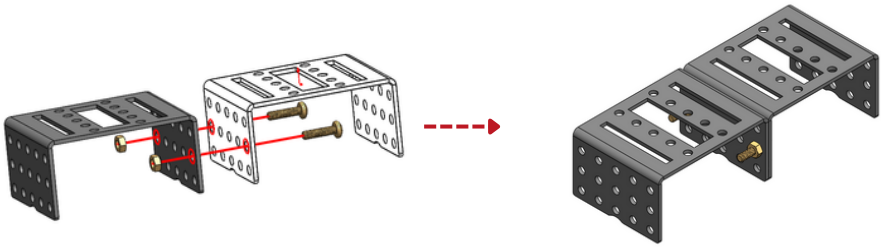
Long arm
x 4



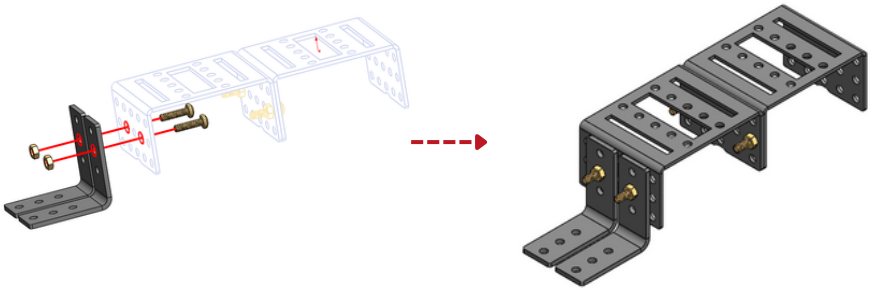
*Angle motor**
x 2

L-angle
x 4

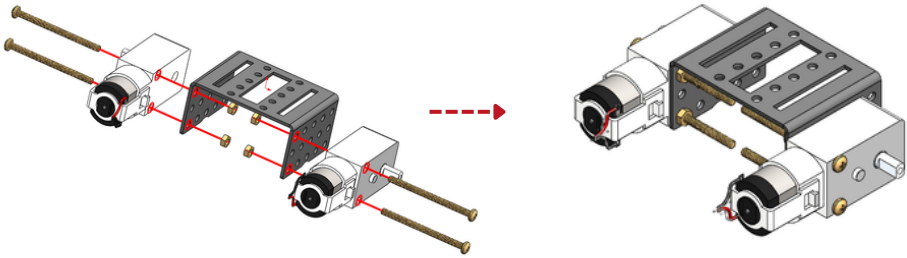
1 *Assemble two C brackets using shot bolts and nuts.*



2 *Assemble two L-angles to the sub-assembly done in step-1 using short bolts and nuts.*

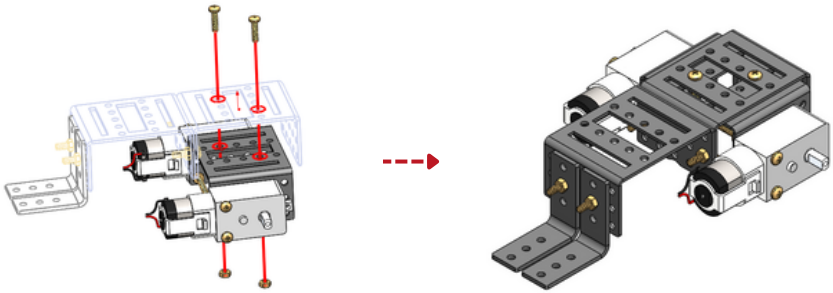


3 *Assemble speed motors to another C bracket with the help of long bolts and nuts.*

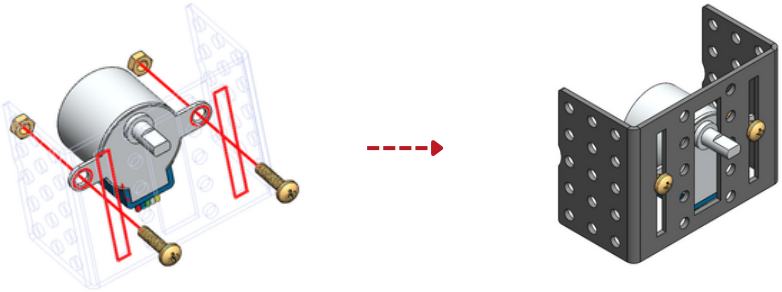


LET'S BUILD !

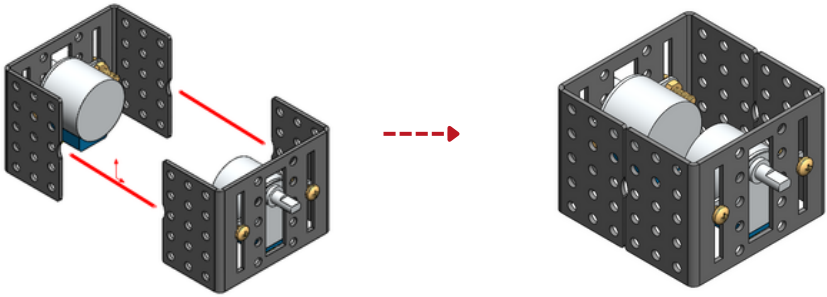
4 *Assemble the sub-assemblies done in step 2 and step 3 using short bolts and nuts.*



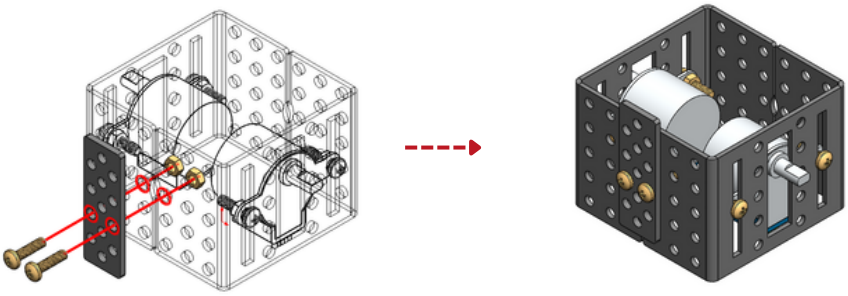
5 *Assemble an angle motor to the C bracket using short bolts and nuts. (Repeat this step once again)*



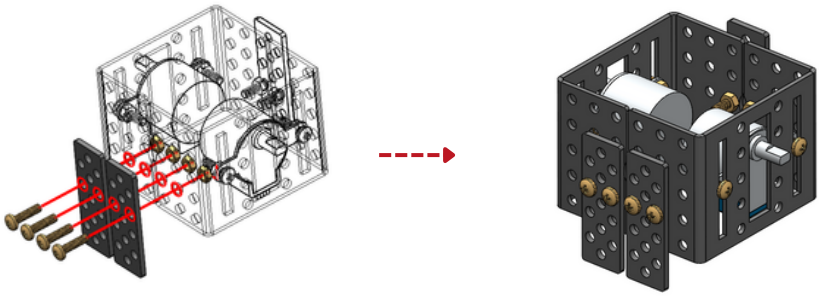
6 *Align the two assembly made in step 5 as given below.*



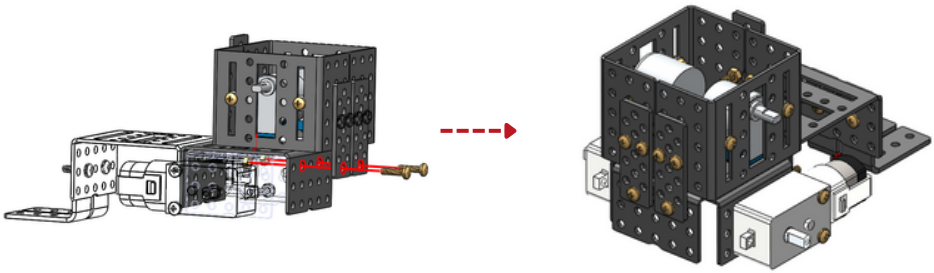
7 *Assemble a short arm to the sub-assembly done in step 6 using short bolts and nuts.*



8 *Assemble two L-angles to the sub-assembly done in step-7 using short bolts and nuts.*



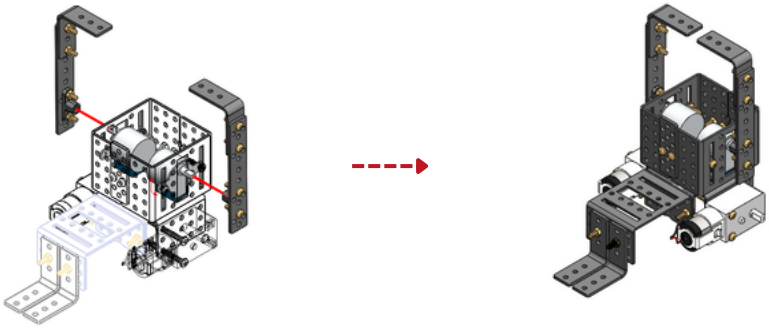
9 *Assemble the sub-assembly made in step 8 to assembly in step 4 with the help of short bolts an nuts.*



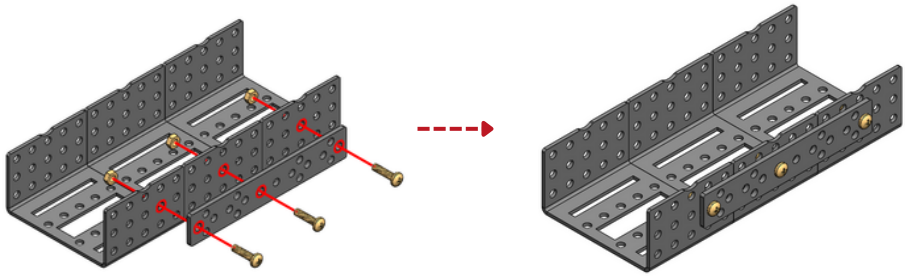
LET'S BUILD !

10 *Assemble an L-angle & Angle motor coupling to the long arm using short bolts and nuts.(Repeat this step once again)*

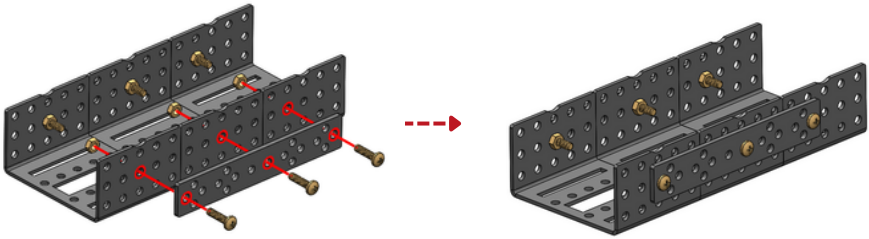
11 *Attach the sub-assemblies made in step 10 to each angle motor.*



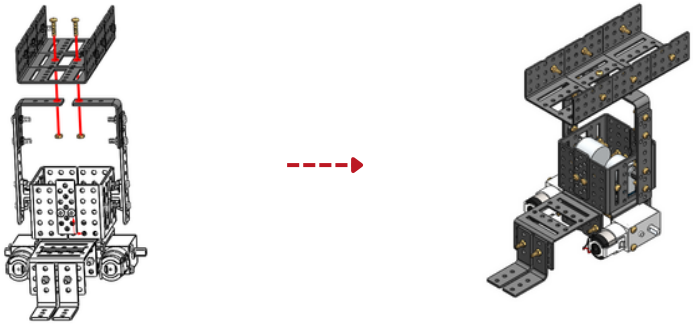
12 *Assemble three C brackets in a row with long arm using short bolts and nuts.*



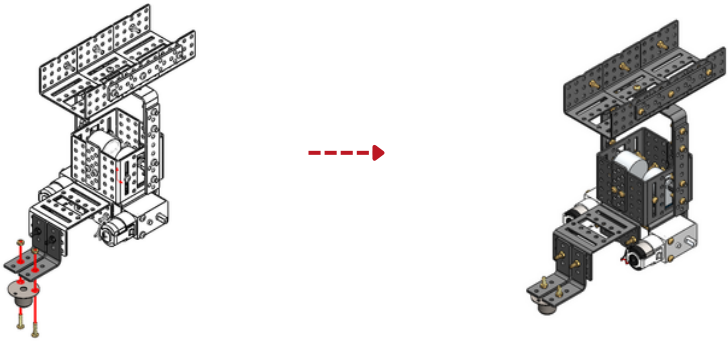
13 *Assemble a long arm (another side) to the sub-assembly made in step 12 using short bolts and nuts.*



14 *Assemble the sub assembly made in step 13 to assembly done in step 11 using short bolts and nuts.*

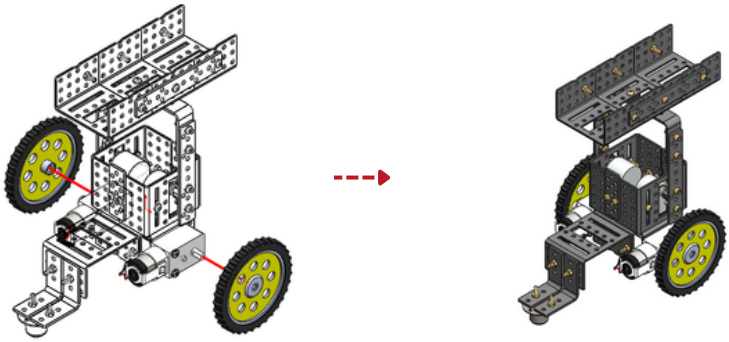


15 *Assemble the castor wheel to the assembly made in step 14 using short bolts and nuts.*

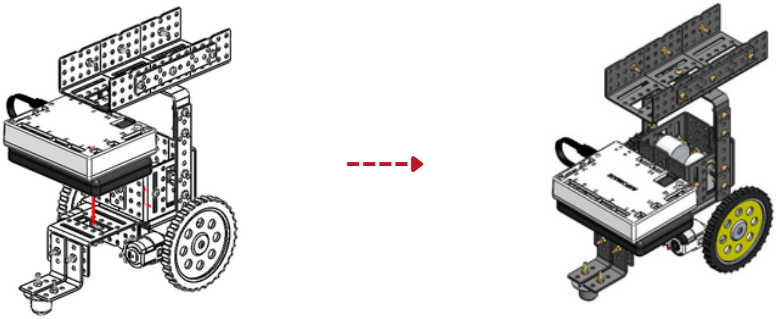


LET'S BUILD !

16 *Assemble the wheels to each speed motor, before assembling them check the orientation of the wheel slot with the motor extrusion.*



17 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



***Note :** Connect speed motors, angle motors, and power source to the microcontroller unit by referring the microcontroller connections manual*

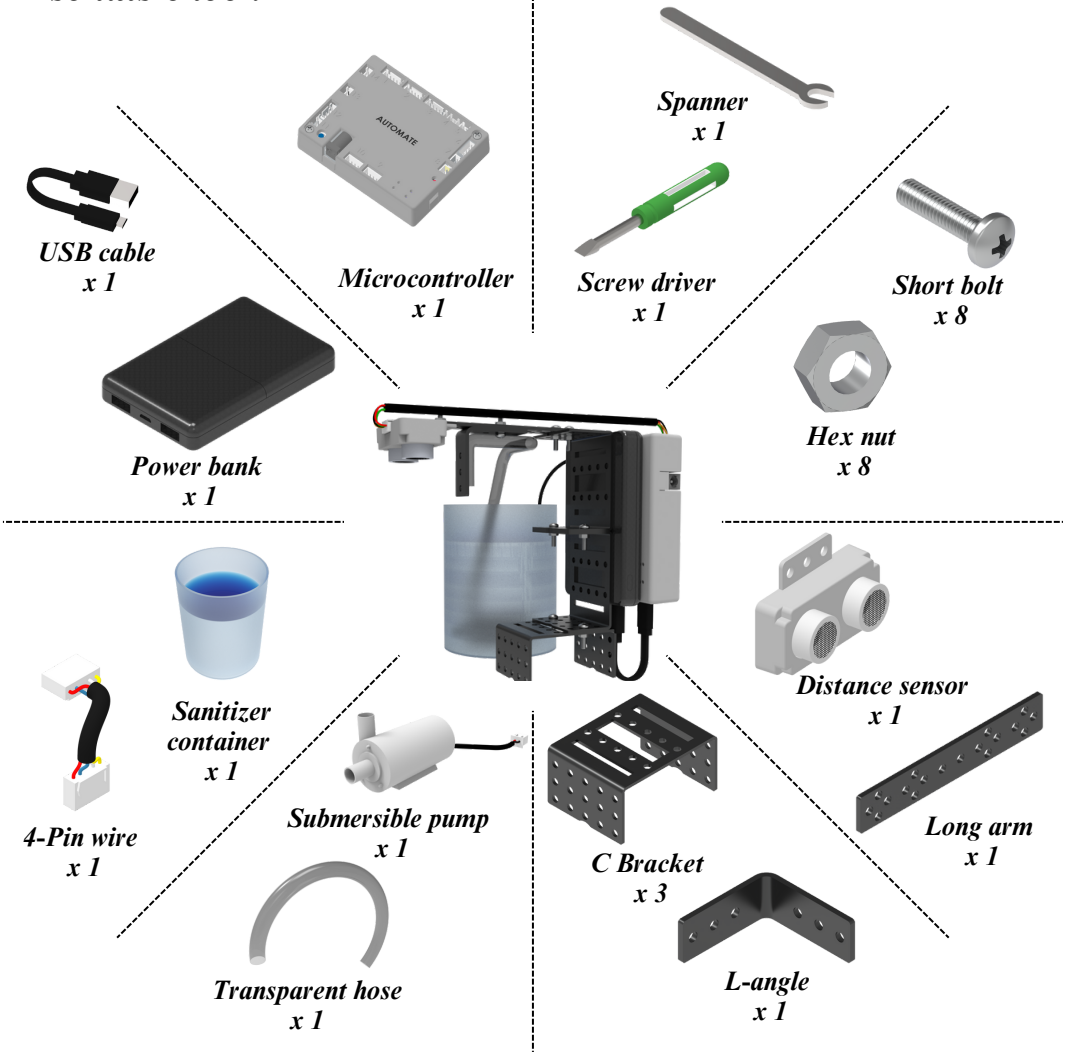
AUTOMATIC SANITIZER DISPENSER

"Automatic sanitizer dispenser itself dispenses sanitizer when the hand is detected."

Mission

Build your own Automatic sanitizer dispenser with metal parts, & submersible motors, and make it automatic.

Arsenals check

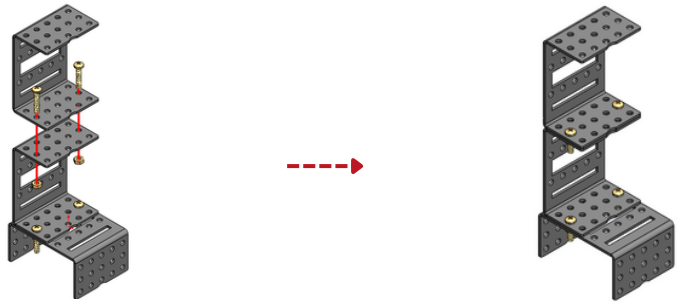


Learn Fact :* ***Distance sensor measures the distance of an object by using Ultrasonic waves(inaudible sound waves with high frequency for human).*

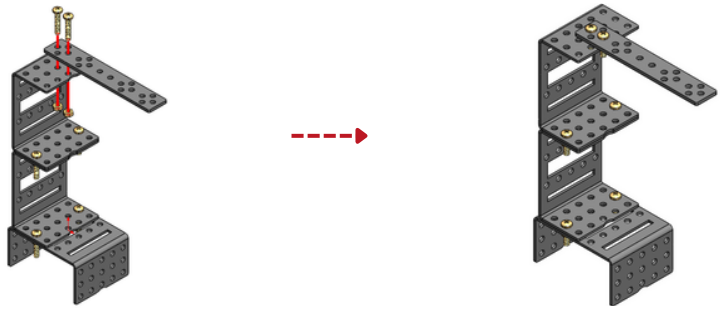
LET'S BUILD !

1 *Assemble two C brackets using short bolts and nuts.*

2 *Assemble a C bracket to the sub-assembly assembled in step 1 using short bolts and nuts.*

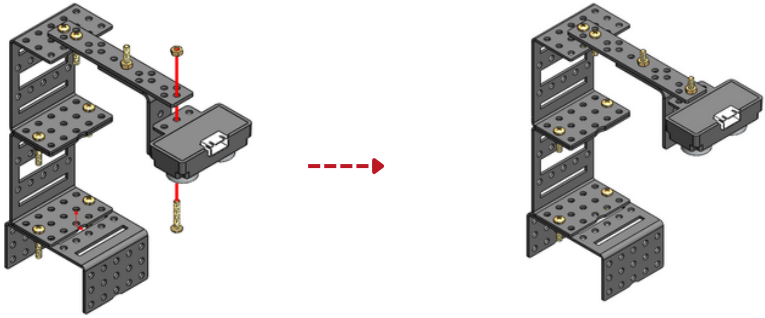


3 *Assemble the long arm to the sub-assembly done in step 2 using short bolts and nuts.*

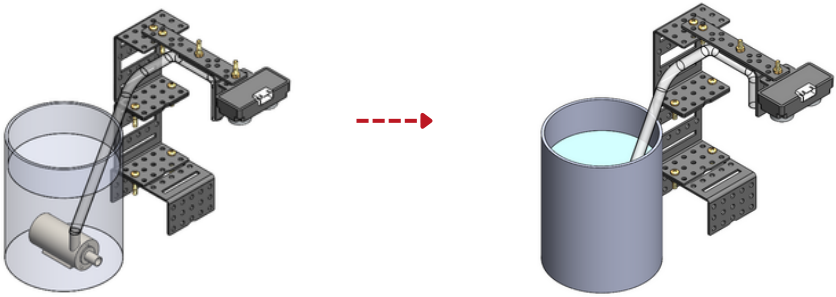


4 *Assemble an L-angle to the sub-assembly made in step 3 using short bolts and nuts.*

5 *Assemble the distance sensor to assembly done in step 4 using short bolts and nuts.*

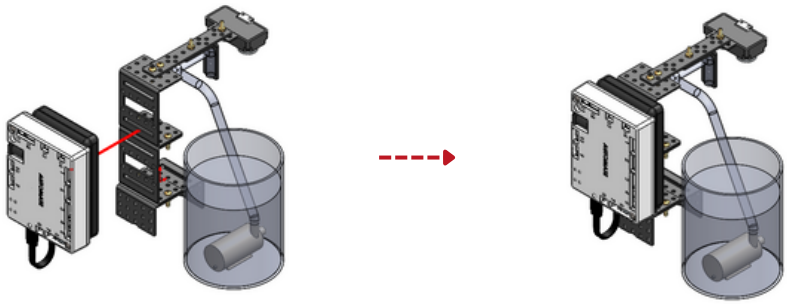


6 *Place the submersible motor in the sanitizer container & align the transparent hose with L-angle.*



LET'S BUILD !

7 *Stick the power bank and thecontroller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



***Note :** Connect the submersible pump, distance sensor, and power source to the microcontroller unit by referring the microcontroller connections manual.*

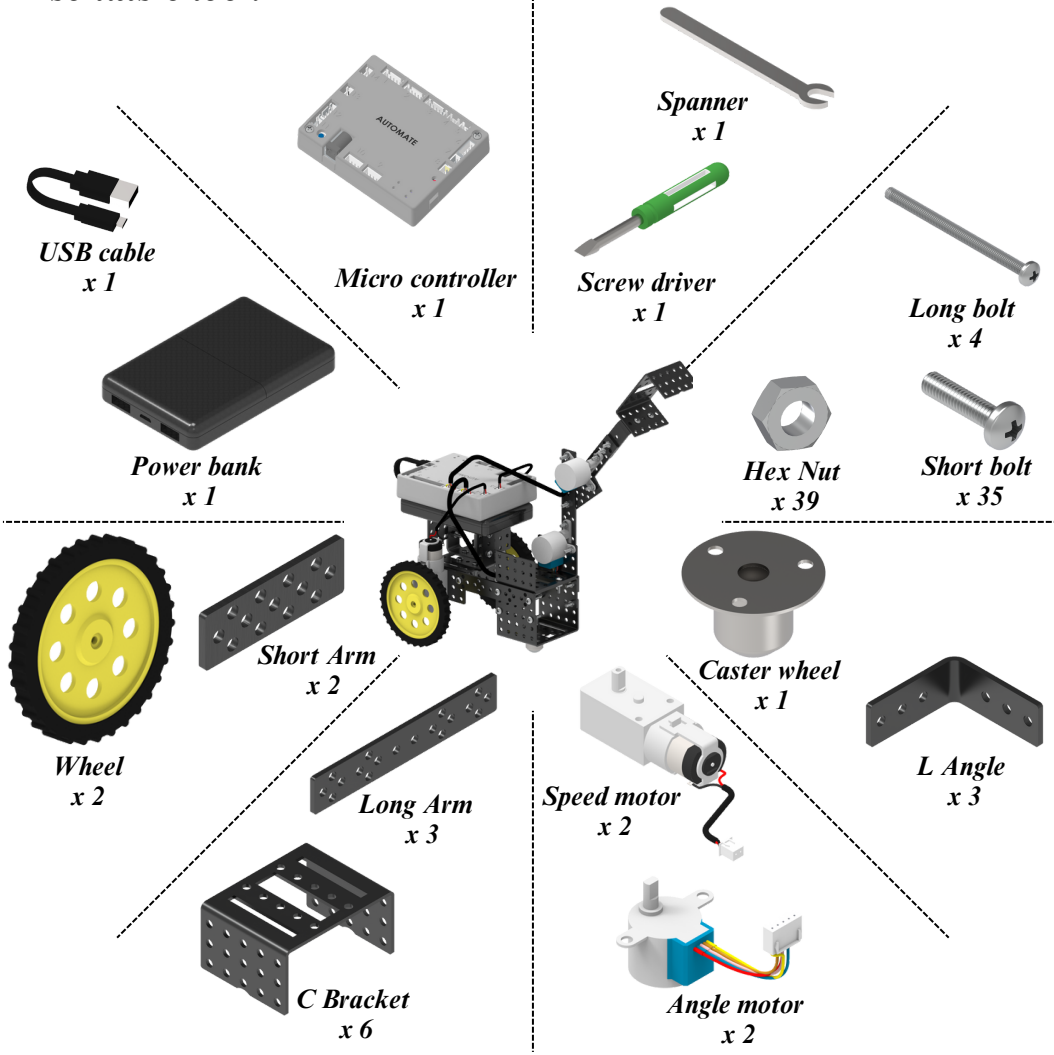
RC EXCAVATOR

"Automate RC excavator is a excavator with wheels which you can control by using a remote."

Mission

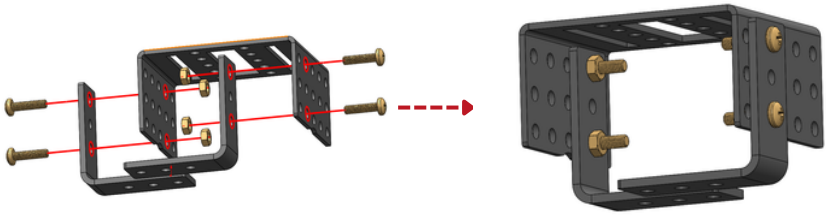
Build your own excavator with metal parts, wheels, caster wheel & speed motors, angle motors and control it by yourself.

Arsenals check

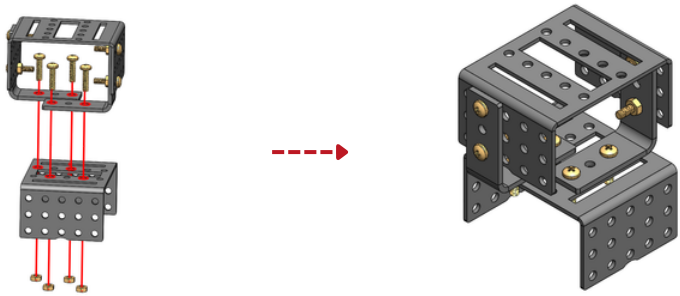


LET'S BUILD !

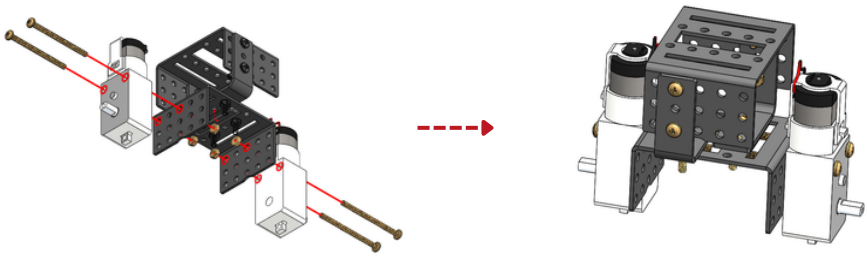
1 *Assemble two L-Angles to the C-Brackets with the help of the short bolts and nuts.*



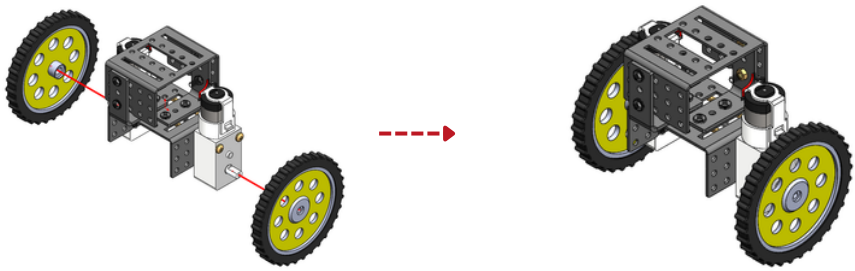
2 *Assemble the C-Bracket to the sub-assembly done in step-1 using short bolts and nuts.*



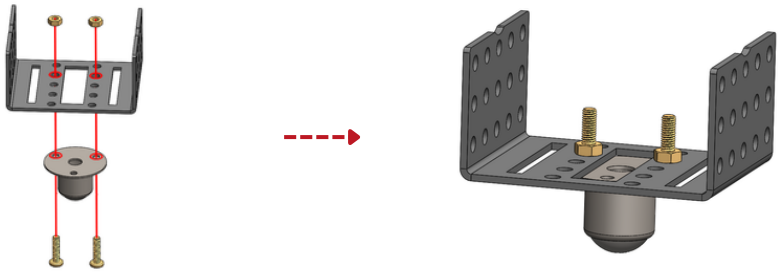
3 *Assemble the speed motors to sub-assembly done in step-2 with the help of long bolts and nuts.*



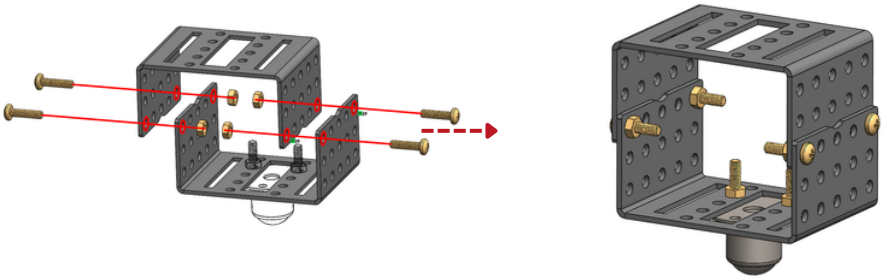
4 *Assemble the wheels to each speed motor. (Before assembling them check the orientation of the wheel slot with the motor extrusion.)*



5 *Assemble the Caster wheel to the C-bracket using short bolts and nuts.*



6 *Assemble the C-Bracket to the sub- assembly done in step-5 using the short bolts and nuts.*

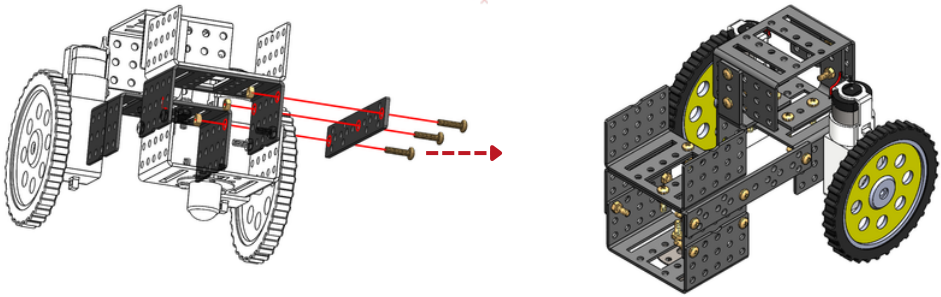


Note :** **Connect the motors and power source by referring to the microcontroller connections manual.

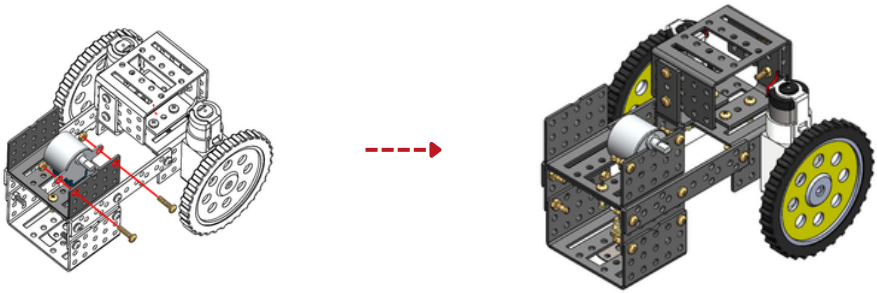
LET'S BUILD !

7 *Assemble a C-Bracket to the sub-assembly done in step 6 using bolts and nuts.*

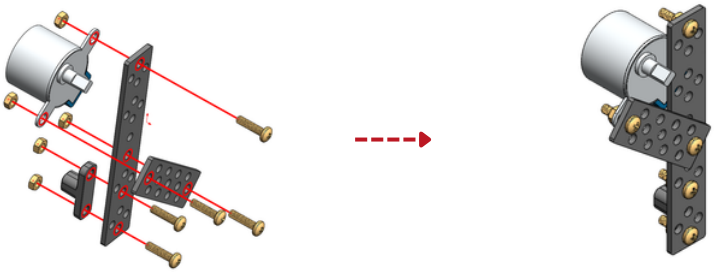
8 *Connect the sub-assemblies in step-4 and step-7 with the long arm using short bolts and nuts.(Repeat the same on the other side)*



9 *Assemble the Angle motor to the sub-assembly done in step-8 using short bolts and nuts.*

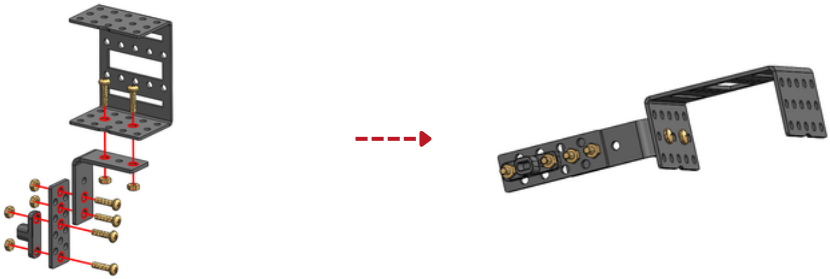


10 *Assemble the angle motor coupling, short arm, and the angle motor in the long arm using short bolts and nuts(Refer to the Below Image) [Arm-1].*



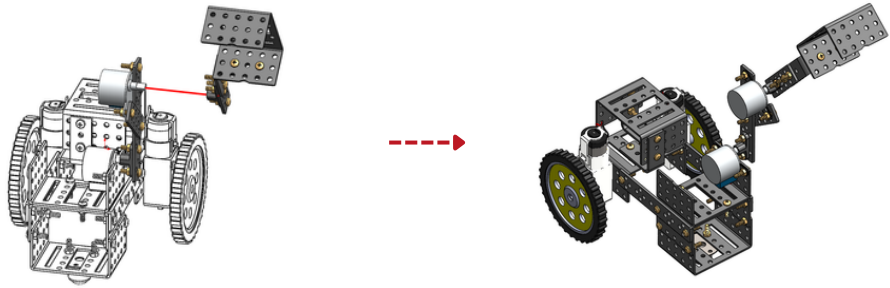
11 *Attach the sub-assembly done in step-10 to the assembly done in step-9 with matching orientation to the angle motor.*

12 *Assemble the c-bracket, l-angle, short arm, and coupling using short bolts and nuts[Arm-2].*

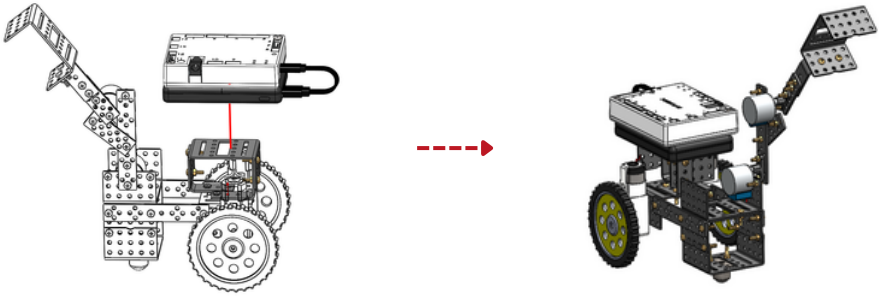


LET'S BUILD !

13 *Attach the sub-assembly done in step-11 and to the assembly done in step-12 with matching orientation to the angle motor.*



14 *Stick the power bank and the controller together with double-sided tape, then stick this assembly to the bracket subassembly with double-sided tape.*



Note : Connect the speed motors, angle motors, and power source to the microcontroller unit by referring the microcontroller connections manual.

LIGHT BULB ON/OFF WITH REMOTE/TIMER

"Turning on and turning off a lightbulb using automate kit".

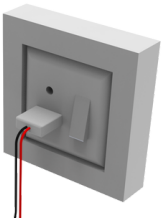
Mission

Build your own remote controllable / timer light bulb set up using automate kit . Here we are going to learn about the working principle of a relay.

Arsenals check

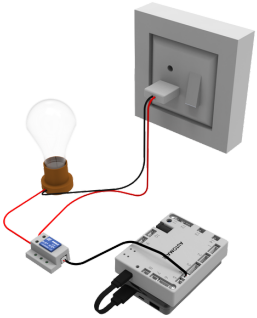
USB cable x 1

Microcontroller x 1

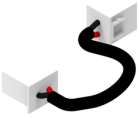


Wire with plug

Power bank x 1



Bulb with holder x 1



2-Pin wire x 1

Relay* x 1

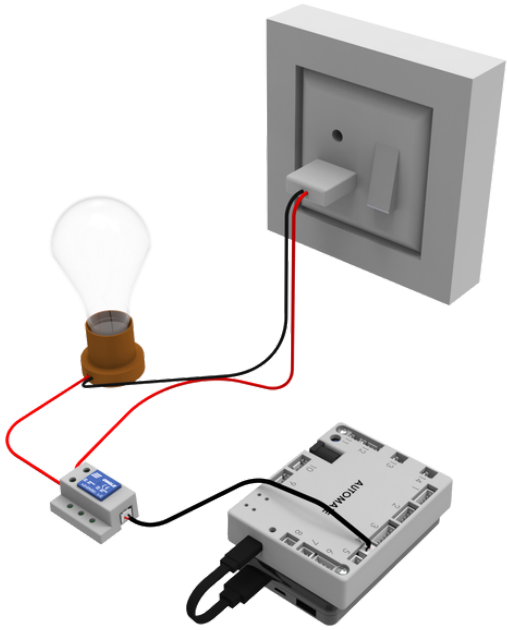
****Learn Fact :*** ***Relay is an electrically operated switch that works on the principle of electromagnetism.***

LET'S BUILD !

Connections:*

1. Connect the light bulb to the power plug with wire(black).

2. Connect the one end of the relay to light bulb with wire(red) and other end to the power plug.



Note :** **All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.

LIGHT BULB ON/OFF WITH LIGHT SENSOR

"Turning on and turning off a lightbulb using automate kit(light sensor)".

Mission

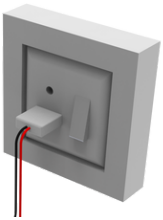
Build your own automatic on/off light bulb set up using automate kit . Here we are going to learn about the working principle of relay and light sensor.

Arsenals check

USB cable x 1

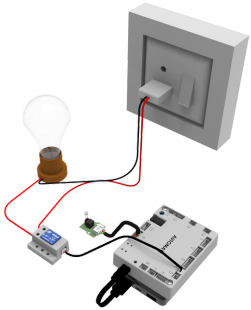
Micro controller x 1

Bulb with holder x 1



Wire with plug

Power bank x 1

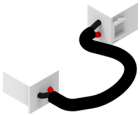


Light sensor* x 1

4-Pin wire x 1

Relay x 1

Sensor board x 1



2-Pin wire x 1

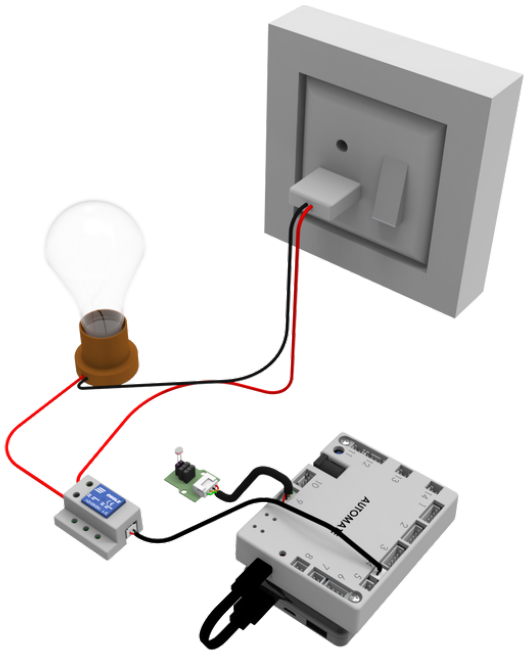
***Learn Fact :** Light sensor is commonly a photoelectric device that converts light energy into electrical signals.*

LET'S BUILD !

Connections:*

1. Connect the light bulb to the power plug with wire(black).

2. Connect the one end of the relay to light bulb with wire(red) and other end to the power plug.



Note :** **All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.

LIGHT BULB ON/OFF WITH SOUND SENSOR

"Turning on and turning off a lightbulb using automate kit(sound sensor)".

Mission

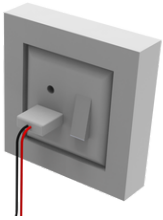
Build your own automatic on/off light bulb setup using automate kit. Here we are going to learn about the working principle of sound sensor.

Arsenals check

USB cable x 1

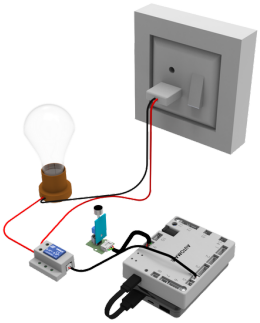
Micro controller x 1

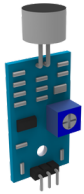
Bulb with holder x 1



Wire with plug

Power bank x 1



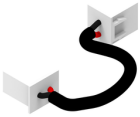


Sound sensor* x 1

Sensor board x 1

4-Pin wire x 1

Relay x 1



2-Pin wire x 1

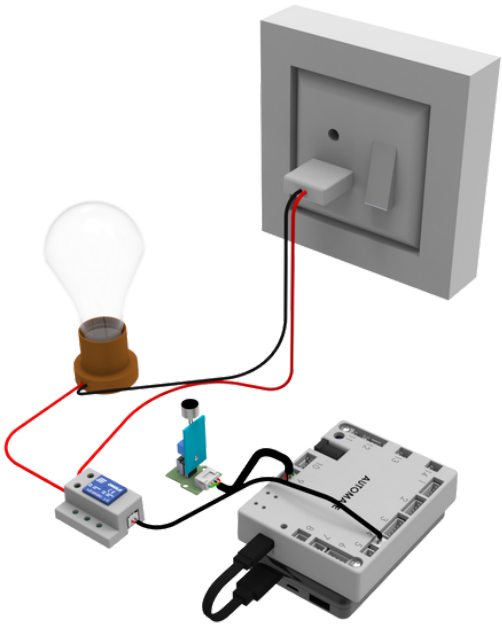
***Learn Fact :** Sound sensor detect the sound waves traveling in the air and converts them into electrical signals.*

LET'S BUILD !

Connections:*

1. Connect the light bulb to the power plug with wire(black).

2. Connect the one end of the relay to light bulb with wire(red) and other end to the power plug.



Note :** **All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.

LIGHT BULB ON/OFF WITH PIR SENSOR

"Turning on and turning off a lightbulb using automate kit(PIR sensor)".

Mission

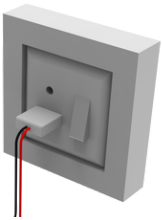
Build your own automatic on/off light bulb set up using automate kit. Here we are going to learn about the working principle of Passive infrared sensor.

Arsenals check

USB cable x 1

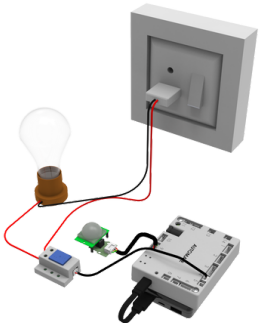
Micro controller x 1

Bulb with holder x 1



Wire with plug

Power bank x 1

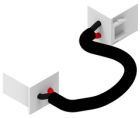


PIR sensor* x 1

Sensor board x 1

4-Pin wire x 1

Relay x 1



2-Pin wire x 1

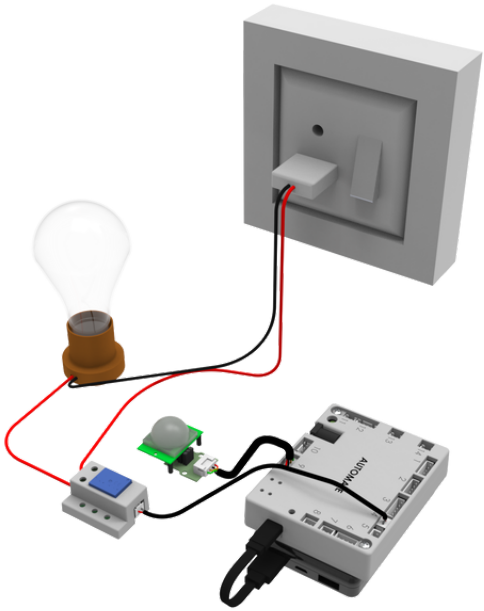
***Learn Fact :** PIR sensor detects and measures the infrared radiation emitted in their field of view these are used in the motion detectors.*

LET'S BUILD !

Connections:*

1. Connect the light bulb to the power plug with wire(black).

2. Connect the one end of the relay to light bulb with wire(red) and other end to the power plug.



Note :** **All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.

TANK WATER LEVEL MAINTAINER

"Maintain the water level of tank using Moisture sensor to limit the waste of Water and power"

Mission

*Build your own automatic Tank water level maintainer set up using **AUTOMATE** kit. Here we are going to learn about the working principle of Moisture sensor.*

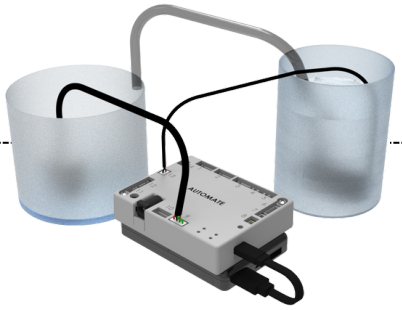
Arsenals check

Power bank
x 1

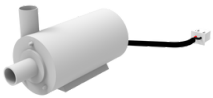
Micro controller
x 1

USB cable
x 1

Transparent Hose
x 1



Moisture Sensor*
x 1



Submersible Pump
x 1

Sensor board
x 1

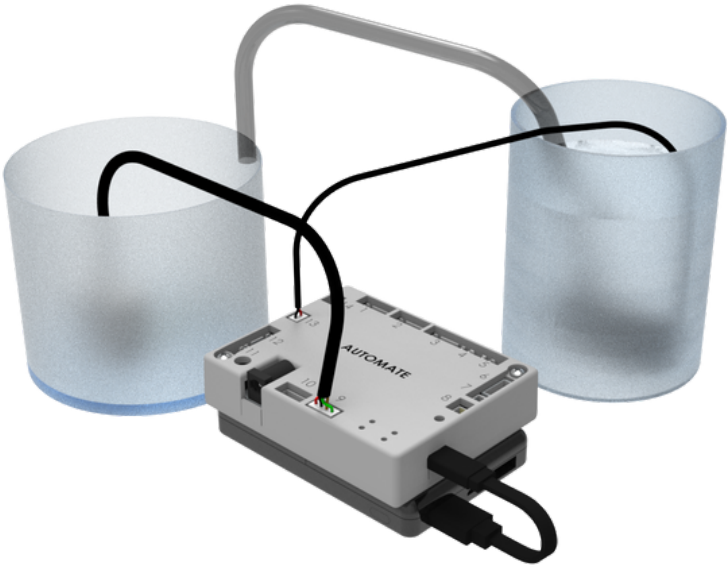
4-Pin wire
x 1

Learn Fact :** **Moisture sensor detects and measures the water content in its field of view and they can be used to water the plants in a household.

LET'S BUILD !

Connections:*

1. *Place the submersible pump in the container that has water in it.*
2. *Place the moisture sensor along with sensor board in the empty container.*
3. *Connect the one end of the transparent hose to the submersible pump and other end to the empty container.*



Note : All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.

AUTOMATIC FAN ON/OFF USING NTC

"Maintain the temperature optimum by turning on/off cooling fan using NTC sensor"

Mission

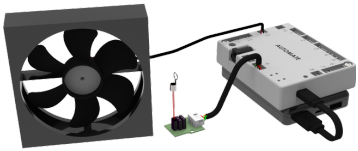
*Build your own automatic fan on/off set up using **AUTOMATE** kit. Here we are going to learn about the working principle of the Negative Temperature Coefficient sensor.*

Arsenals check

USB cable
x 1

Power bank
x 1

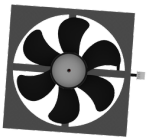
Micro controller
x 1



NTC sensor*
x 1

Sensor board
x 1

4-Pin wire
x 1



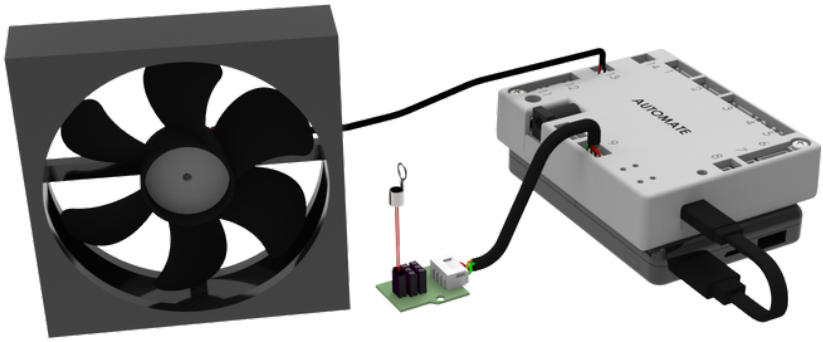
Cooling fan
x 1

***Learn Fact :** NTC stands for Negative Temperature Coefficient, It rises the voltage respective of temperatures rises.*

LET'S BUILD !

Connections:*

1. *Place the Cooling fan wherever you want to reduce the temperature.*
2. *Place the NTC sensor along with sensor board in wherever you want to find the change in temperature.*



Note : All activities which involves mains voltages (voltage greater than 50V) should be performed under adult supervision.