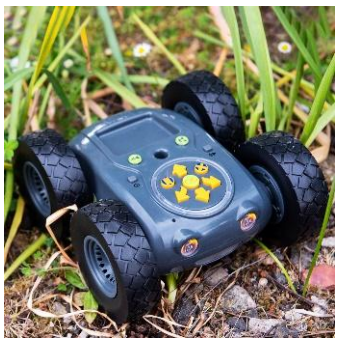
User Guide – Rugged Robot

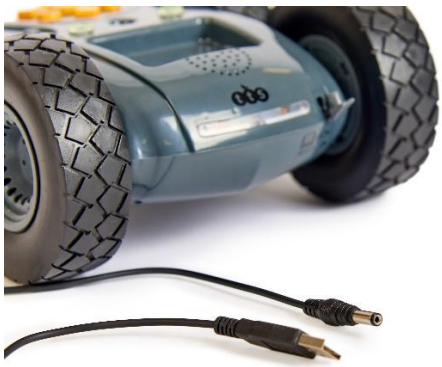


Getting started with Rugged Robot

First things first – Charging Rugged Robot

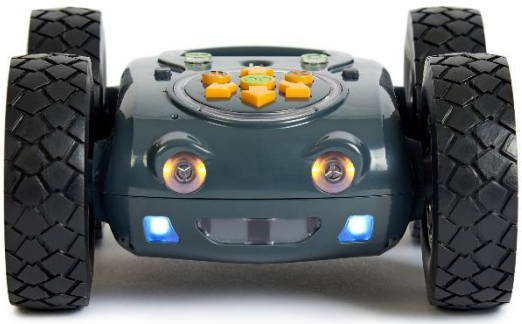
Before using your Rugged Robot, ensure that it has enough charge. Here is a charging checklist:

- Turn off the power to charge, the robot will not work whilst charging.
- To charge, use the USB cable provided by inserting the DC jack into the charging socket.
- Takes approximately 1-2 hours to charge and once fully charged will run for around 3 hours.
- Top tip – If you are using the Rugged Robot App, ensure your tablet is charged and ready to go, along with any other accessories you may be using.



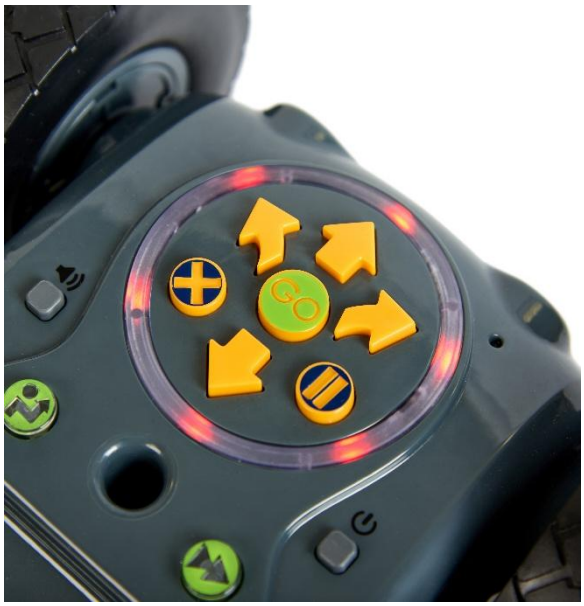
How to switch Rugged Robot on?

Press the power button which is located on the left-hand side of the control panel. The robot will indicate it is switched on by lighting up (eyes etc) and beeping.

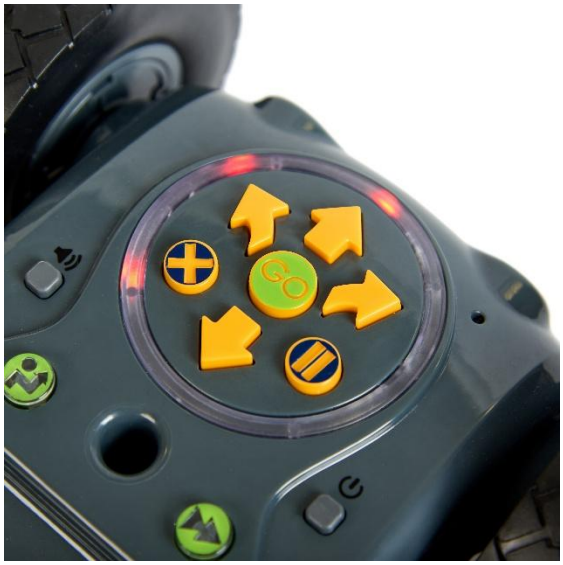


How do I know when Rugged Robot is fully charged?

When first turned on, the six segments around the LED ring on top of Rugged Robot will light up red to indicate that the robot is fully charged. As it loses charge, the segments will start to disappear.



Rugged fully charged



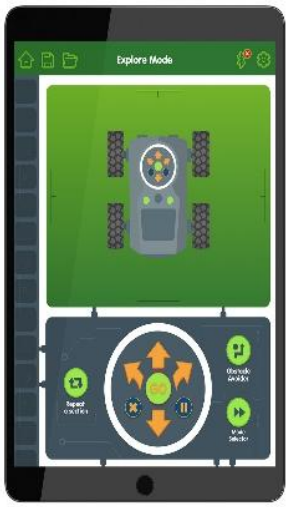
Rugged NOT fully charged

Connecting to Bluetooth and Pairing

If you are using the App to control the robot, you must be connected via Bluetooth. Once connected, the segments around the LED ring which are usually red, will turn blue.

Follow these instructions when pairing:

- Turn your Rugged Robot on to make it discoverable with your device.
- Locate the Bluetooth settings on your App.
- Switch Bluetooth on and search for nearby devices.
- The Rugged Robot will appear on the list of devices.
- Select the Rugged Robot on the list to pair with.
- Once paired, it can be controlled by the App.



Pairing more than one Rugged Robot for a lesson

If using more than one Rugged Robot in a lesson, a top tip is to pair them one by one, with distance between them if possible, and maybe add a stickered label with a colour, number or name so each device is identifiable. When using multiple Rugged Robot's together, this will ensure that the children know which robot they are controlling. This is especially useful if using the Rugged Robot for data logging.

Please note: Rugged Robot will go into low power mode if inactive for 5 minutes to reserve the battery. However, this means that the robot will need pairing again. Wake up the robot by pressing any button.

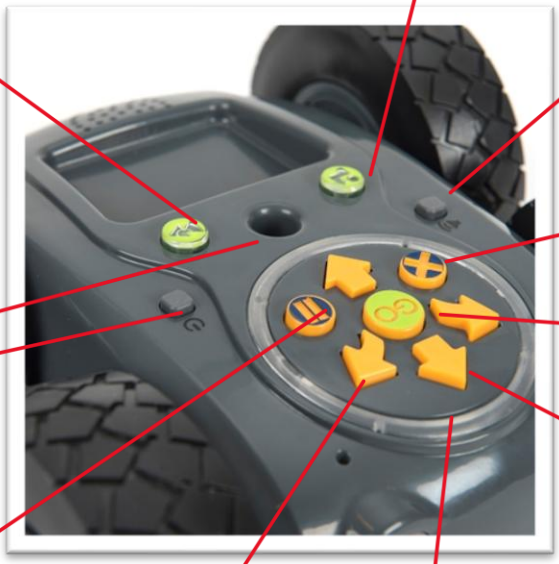
Familiarise yourself with the controls

Obstacle avoider on- Rugged will turn to avoid obstacles.

Obstacle avoider off- Rugged will not avoid obstacles on his own.

Mode Selector- 3 modes to choose from depending on your terrain, the higher the mode the more rugged the terrain.

Sound- Sound can be turned on or off. Recordable messages to confirm when commands have been entered.



Camera mount holder- built in camera mount holder to record adventures.

Clear- deletes all previously stored commands.

On/off- press to turn on and see Rugged Robot's eyes light up.

Go! – executes the stored algorithm.

Pause- pauses motion for 1.5 seconds.

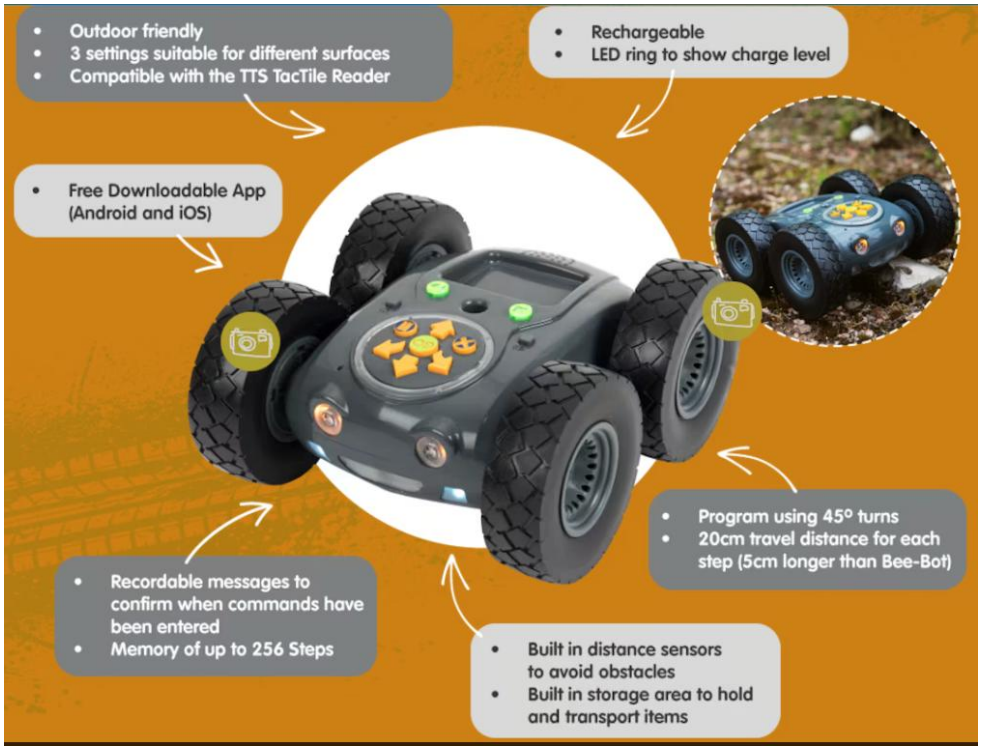
Forward/Backward- moves Rugged one 20cm step forward/backwards.

LED ring- segments light up red to show charge level, light up blue when connected to Bluetooth.

45 degrees left/right- turns Rugged 45 degrees to either left/right.

Remember to press the cancel button before starting a new algorithm otherwise any new instructions will be added to the previously stored routine.

Rugged Robots Special Features



- Rugged is the first outdoor robot, specifically designed for outdoor use.
- Robust with chunky, thick wheels.
- Memory of up to 256 steps (Progresses on from Bee and Blue, who can do 200 steps).
- 20cm travel distance for each step (5cm longer than Bee-Bot).
- 45 degree turns (progresses from Bee-bot's 90° turn).
- Capable of recording messages (on the App only) to say the commands out loud when pressed. The recordings will be played from the iPad or Tablet you are using.
- Three torque settings for different terrains.
- Obstacle Avoider that can be switched on/off to detect obstacles in front of the robot. When an obstacle is detected, the robot will reverse, turn 45 degrees and continue the program.
- If Rugged flips over, it can continue on its journey! Just remember that it will work in reverse in this situation e.g. forwards will become backwards.
- A camera mount can be purchased separately. This fits into the central hole for a camera to be attached so that pictures/videos of the journey can be recorded.
- Built in storage area, designed to hold a data logging backpack (sold separately). However, the storage area can also be used to transport small items collected by the children when the data logger is not being used.
- Compatible with the TTS TacTile Reader (physical coding) – purchased separately.
- Free downloadable App (Android and iOS) – **Not** compatible with mobile phones.

Programming Rugged Robot

Rugged Robot has been designed as an outdoor floor robot.

- After initial switch-on, the eyes will light orange and the rear lights will light red, these will remain on until the Robot is turned off.
- If the Robot is not used for 5 minutes, it will enter low power mode and turn off all lights. Press any button to wake the Robot up.
- The sequence memory is cleared on start-up, pressing <Go> at this point will simply cause a sound to be played and no motion to occur.
- The user can press a sequence of commands, which are stored in the sequence memory. A maximum of 256 commands can be stored; each command being either one forward/backward movement, left/right turn, or a pause.
- Each forward or backward command causes the unit to move approx. 20cm in the required direction.
- Each turn command causes the unit to rotate 1/8th of a turn - 45°.
- A pause command causes the unit to pause for 0.5 seconds.
- When the <Go> button is pressed, the unit will execute all the commands stored in order with a short pause between each command.
- When the command sequence completes, the unit will stop and play a sound. (The sound can be turned on/off using the sound switch on the top of the Robot).
- Pressing <Go> whilst a sequence is running will stop the sequence.
- Pressing the clear button <X> will clear the sequence memory.
- Pressing the avoidance button will cause the button to illuminate green. When this is activated, the Robot will reverse, turn 45 degrees and continue the program. To turn the avoidance mode off, press the button once more and the green light will turn off.
- There is a light sensor which will automatically activate the headlights when the Robot enters a darker environment.
- There are 3 torque (speed) modes.

When first switched on the Robot will default to Mode 1.

Mode 1 - Button not illuminated and Robot will pause between each sequence step.
Mode 2 - Button will illuminate and Robot will not pause between each sequence step when travelling in a straight line.
Mode 3 - Button will flash and Robot will not pause between each sequence when travelling in a straight line, and additionally the turns will be faster for better performance on uneven surfaces.

How do you look after and clean your Rugged Robot after use?

- To clean, wipe the surface with a soft, clean, damp cloth.
- Although Rugged can go through shallow puddles (approximately an inch deep), avoid the robot coming into contact with deeper water or other liquids.
- Keep away from direct sunlight and heat.
- Do not leave outdoors after use.
- In the event of a static discharge, the robot may malfunction. In this case, please switch it off and then back on again to reset it.

Trouble Shooting Tips

Problem	Solution
Robot will not operate	Ensure that the power switch is pressed, and the battery is sufficiently charged.
Robot will not move as expected	Check the ground is suitable and the wheels are free from dirt.
Sound is not audible	Ensure the sound button is pressed, and the battery is sufficiently charged.
Lights have come on but no movement	Recharge by plugging in the USB cable.
Robot is working intermittently	Switch the product off and on again to reset.
Rugged is not avoiding obstacles	Press the obstacle avoidance button - it should illuminate green when active. Ensure the obstacle is high enough to trigger the sensor - small objects may not be seen by the sensor.

Once you have mastered Rugged Robot – Press the green 'GO' button and let the fun begin!