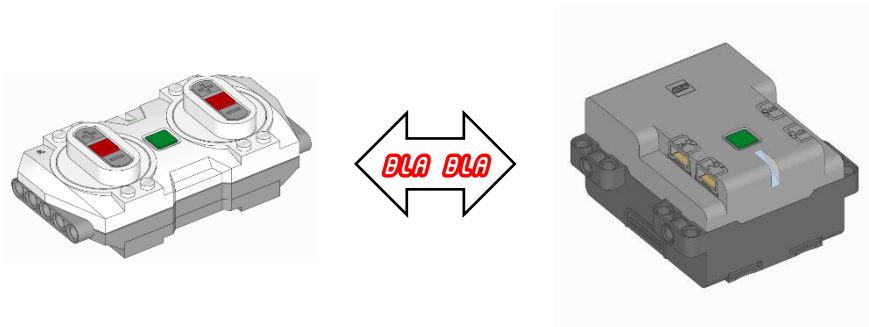# Remote *BLA BLA*

a configurable *LEGO* TechnicHub/CityHub program

- no screens attached -

Version 1.01

by VascoLP

January 2023

Contents

For Remote Bla Bla version 1.01, January 2023.

1 Introduction

Remote Bla Bla is a Pybricks (https://pybricks.com) program for a LEGO PoweredUp TechnicHub and a LEGO PoweredUp Remote Control where you first define how each device answers to remote control button actions (config mode) and then you play with your MOC/Set using the defined configuration (play mode).

The configuration is saved so that you can turn off the hub, change batteries if needed, go back to your hub and everything is there. Just play. If the configuration is not what you want, you can go back to config mode and reconfigure the behavior.

Keep in mind that this is a computer with an input device of 7 buttons and an output device of just two LEDs. This is a Star Trek like interface: *you don't see what you get (*a real YDSWIG interface😊). However, once you learn it, you will notice that it is simple. No screens attached!

Remote Bla Bla also works on a CityHub with some restrictions, see below. The TechnicHub version should also work on InventorHub or PrimeHub, considering four commands but up to six motors, but I don´t have one of those to test.

This documentation is for versions 1.00 and 1.01 of Remote Bla Bla. Notice that configurations saved on the 0.98 version are not compatible with current version (it had to be… I will try to avoid that in future releases!).

1.1 Concepts

- BLA – Button LEGO Action (why not?). It corresponds to a set of buttons on the remote (typically a plus button and a minus button) and the action it does in some of the devices connected to the TechnicHub;
- BLA Mode: the type of interaction a BLA does with devices. For instance:
  - o Simple Motor: Press plus button and motor spins clockwise. Release plus and motor stops. Press minus and motor spins counterclockwise.
  - o Steering: press plus and motor spins clockwise until limit reached. Release plus and motor goes back to center position. Press minus and motor spins counterclockwise until limit reached.
- Config Mode: the mode used to configure how it should work.
- Play mode: the mode used to play with your MOC/Set.
- HOLD: In modes where the motor is stopped, a stepper for instance, when the motor is stopped in a given position, the motor keeps controlling axle position. If you try to move it, the motor will oppose to it. This means that you can build gearboxes, for instance, without a 90º multiple limiter… on the other hand, it means that it consumes energy even when stopped.
- COAST: coast is the opposite of hold. When a motor is moved to a given position, it is left free in the destination position. This means that something external can set motor position in a wrong position. But it consumes less. And you might include position limiters in your build in such a way that there is no need for a hold stop

- Reverse Direction: A BLA Mode can control two or more motors. All the motors will spin in the same direction. On any BLA Mode, if reverse direction is activated, each motor will spin in the opposite direction of the previous one.

2 Installing

2.1 Installing from provided Firmware

The best way to install Remote Bla Bla is to install pybricks firmware with Remote Bla Bla already integrated. These instructions explain how to do that.

1. Download Remote Bla Bla firmware from github here:
   - [Technic hub](#)
   - [City hub](#)
2. Open https://code.pybricks.com

3. Click on **Settings & Help**, if needed to open the list of options (the gear on the left)

4. Select **Install Pybricks Firmware**

5. On step one, select your hub, open the **Advanced** box below if needed, and drag and drop Remote Bla Bla firmware to the box below

6. Notice that the menu will say **Custom Firmware Selected**, with something like: **v3.1.0 [Remote Bla Bla v1.01]**

7. Proceed to remaining steps as explained in the menus

That's all!

Now, when you start your hub, it will start Remote Bla Bla.

Note: if you include Remote Bla Bla in your hub firmware, and turn off the hub completely (this is, no blinking lights) when you connect it back, you might need to click twice to start Remote Bla Bla. First click turns on pybricks, (blue blinking light), second click starts Remote Bla Bla (white blink light asking for remote).

If you need to return to LEGO firmware, open https://code.pybricks.com and select **Restore Official LEGO Firmware**.

2.2 Running using source code

To install Remote Bla Bla from source code you just need to follow the procedures described in pybricks.com and run the `RemoteBlaBla.py` file on your TechnicHub. This version of `RemoteBlaBla.py` works in pybricks v3.1.0 on 2021-12-16 (see next section!).

You can test Remote Bla Bla under the pybricks interface, but its true power happens when you include it in your TechnicHub firmware. By doing so, you will have a configurable standalone device which you can configure according to your needs.

2.3 Remote Bla Bla and Pybricks v3.2

Unfortunately, Remote Bla Bla does not work with Pybricks 3.2.

This means that if you paste `RemoteBlaBla.py` to pybricks code on v3.2 it will not work as expected.

This is because Remote Bla Bla requires the ability to connect, disconnect and reconnect devices to the Hub and some of the improvements in Pybricks v3.2 removed the ability to do this. Pybricks team is aware of the problem and, hopefully, a future version will solve this issue. Meanwhile, the Remote Bla Bla firmware provided above is built using Pybricks v3.1.

3 Quick Tour

3.1 Connecting

When you run Remote Bla Bla in your TechnicHub for the first time, the hub light starts to blink in white. This indicates that you should connect your remote control.

After connecting the remote, the remote light will go to a steady white. That indicates that you are in config mode.

3.2 BLA Mode

The color and blink speed of hub´s light indicates in which BLA Mode the hub is in. There are 8 different colors in steady, slow blink and medium blink types. Remote Bla Bla can have defined up to 32 different BLA Modes (currently there are 24).

You should have your hub light in a steady cyan, which is the simplest BLA Mode: press plus to activate the motor, press minus to activate it in the opposite direction.

Using the Red Buttons of the remote you can choose different BLA Modes. Try it.

3.3 Selecting a Mode

To select a mode, you have first to connect the device you want to control to the hub. Connect a motor, any motor, to a port, any port. Choose the steady cyan BLA Mode (BLASimpleMotor).

To choose the currently selected BLA Mode you will use one of the Plus and Minus keys of the remote. You then use the Plus and Minus keys on the remote, to define further characteristics of your BLA Mode. Press the Right Plus button on the remote. This means "rotate the motor clockwise in full power". When you press it, you get some green blinking on the hub light, and then, back to steady cyan. This means that your mode was successfully configured.

If you press again the Right Plus button, you will get some red blinking. This is because you haven't connected any other motor to the hub. The motor currently connected is assigned to the first BLA Mode you just defined, so it cannot be reused.

If you want to configure another motor, go on, select slow blink <mark>yellow</mark>, using the red keys (BLAServo90_1_3), connect another motor (this time it must be one with position sensors) and choose it, by pressing Right Plus key. You are defining a Servo Motor.

3.4 Save configuration

To save your configuration, press the remote green button. This will save your current configuration and move to play mode. The remote and the hub lights will be <mark>green</mark>, showing that you are in play mode.

You can now move on to play mode directly. Or you can disconnect everything (press the button on the hub) and connect it again latter. After connecting the remote, you will be in play mode, as indicated by the green lights.

3.5 Play mode

If you followed the previous steps, you are in play mode. Press the Plus and Minus buttons of your remote and watch the motors running! The right buttons on the remote control the simple motor, the left buttons control the servo.

To go back to config mode, press the remote's green button for half a second[1]. You go back to config mode, but the saved configuration is still there. Configurations are saved only when you press successfully the remote's green button in config mode.

3.6 Doing more

We are now going to build a car with two drive motors, one steering control device and one gearbox control. Go back to config mode and disconnect all devices. Connect two motors to two ports, any ports. Notice that which ports you connect to is not important, you should connect to the ones that suit the most to your MOC/Set.

Choose BLASimpleMotor: if not already there, use the red buttons until you get a steady cyan. Select this BLA Mode by pressing Right Plus button.

Now pick one motor with sensors and connect it to another port. This will be the steering control device. The steering control will detect right and left limits of your steering, so you need to do something to have those limits. A simple setup like this is enough:
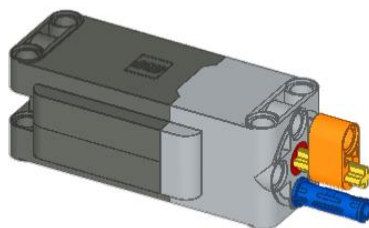
Choose BlaSteering_1_3 BLA Mode (steady green). Press the Right Plus to choose a simple steering. This will add the second BLA.

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[1] Don´t press it too long, remote disconnects at 1.2s. Remote light will blink orange when you reach half a second, so you can release there.

Now a gearbox control. Suppose it is a 90º steps controlled gearbox. Connect another motor with sensors to the remaining port. Choose BLAStepperZero90_4_5 (slow blink blue). Select it by pressing Right Plus button.

Now you have a remotely controlled 3 thingy. Before moving to play mode, notice that the steering mode needs some calibration: it needs to find its limits. This happens when you select play mode. Do select play mode!

Now you have:

- Right Plus and Minus control the two drive motors
- Left Plus and Minus control the steering
- Right and Left buttons control the gearbox

Notice that, after initial calibration, you do not need the blue pin.

4 One Remote, Four Devices

The LEGO powered up remote is best designed to control two devices. The TechnicHub has four devices. So, you have these options:

- One BLA Mode (controlling 1 up two 4 motors):
    - Right Plus and Right Minus buttons control devices power
    - Right Red button set power to zero

- Two BLA Modes:
    - Right Plus and Right Minus buttons control first BLA devices power
    - Right Red button set power to zero on first BLA
    - Left Plus and Left Minus buttons control second BLA devices power
    - Left Red button set power to zero on second BLA

- Three BLA Modes:
    - Right Plus and Right Minus buttons control first BLA devices power
    - Left Plus and Left Minus buttons control second BLA devices power
    - Right Red (acts as plus) and Left Red (acts as minus) buttons control third BLA devices power

- Four BLA Modes (Red buttons acting as Shift key):
    - Right Plus and Right Minus buttons control first BLA device power
    - Left Plus and Left Minus buttons control second BLA device power
    - Shift Right Plus and Shift Right Minus buttons control third BLA device power
    - Shift Left Plus and Shift Left Minus buttons control fourth BLA device power

When you have more than 2 BLA Modes you cannot use the red buttons to stop the corresponding BLA. However, if the motor is spinning, you can still zero it, by double clicking on the plus or minus button corresponding to the opposite spinning direction.

5 One Remote, Six Devices

This version of Remote Bla Bla should also work on InventorHubs and PrimeHubs. In those hubs, it will still have only four BLA Modes but they can control up to six motors.

Notice: at the time of this writing, I haven´t tried it because I don´t have any of those hubs.

6 Config Mode

Config mode is used to associate BLA Modes to devices. The sequence is:

1) Choose the current BLA Mode using Red buttons on the remote control.
2) Connect the device(s) you want to be controlled by current BLA mode to the Hub.
3) After connecting the device(s), select current BLA Mode appropriate detail configuration by pressing one of the 8 available options (use Red buttons to shift):
   1. Right Plus
   2. Left Plus
   3. Shift Right Plus
   4. Shift Left Plus
   5. Right Minus
   6. Left Minus
   7. Shift Right Minus
   8. Shift Left Minus

   As a rule:

   o Plus buttons choose clockwise rotation of the motors
   o Minus buttons choose counterclockwise rotation of motors
   o On steady BLA modes (servo, stepper, steering) without Shift you have HOLD modes and with Shift you have COAST modes

   If current BLA Mode does not support one of the devices, you will get a red blink on the hub light. If everything is ok, you will get some green blinks on hub light.

4) To choose another BLA Mode, go back to step 1.
5) Last defined BLA Mode can be deleted from configuration by clicking Shift (that is, one the red buttons in the remote) and the Green Button on the hub. Successful delete will result in green blinks in hub light. If there is nothing to delete, you will get some red blinks. You can keep on clicking Shift Green Hub Button until everything is deleted.
6) To save everything, press green button on remote. This is the only time when a configuration is saved. If there is nothing to save, you will get some red blinks on the hub light. If saving is ok, you will get some green blinks on hub light and move to Play Mode.
7) During all the previous steps, the remote light is white. If want to connect two or more motors to a mode and want the motors to spin in opposite directions (Reverse Direction), you must, before step 3, click Shift-Green button on the

remote. By doing that, the remote light will be set to Magenta. This means that step 3 will choose the Reverse option for the BLA Mode being chosen. Notice however that Shift-Green will only work if you have connected two or more devices to be used by the next BLA Mode. To exit Reverse Direction mode, press Shift-Green again or mov to another BLA Mode.

7 Play Mode

In play mode, remote buttons will control devices as described in chapter 0 - Notice that, after initial calibration, you do not need the blue pin.

One Remote, Four Devices. To go back to config mode, press the remote's green button for half a second[2].

When you enter Play Mode, BLA Mode needed device initializations will happen. For instance, in a steering mode the limits of the steering will be found. Notice that if there are no limits in an initialization that needs limits, device initialization might run forever.

8 Saved configuration

Technic Hub does not have the ability to save any data. So, configuration is saved in the Remote name property, in an encoded way. This means that you can "move" one saved configuration from one hub to another by using the same remote.

9 Goodies

9.1 Major types of modes

9.1.1 Power

Power modes are modes that set electrical power on the motor. No sensors are used, so any motor, including sensor less motors, can be used. Configurations include direction and amount of power used in percentage.

9.1.2 Speed

Speed modes use motor sensors to control speed. Speed is defined by the commands and the motor tries to follow the defined speed. There are modes that define a percentage of the device maximum speed (using device id and philohome.com maximum speed definitions). There are also modes that change speed in degrees/second steps until the motor cannot turn faster, so no device dependency.

9.1.3 Servo

Servo modes set 0 position and move 90º left or right, possibly with some steps.

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[2] Don´t press it too long, remote disconnects at 1.2s. Remote light will blink orange when you reach half a second, so you can release there.

9.1.4 Steering

Steering modes use sensors to detect staling and define movements from one limit to the other. The movements might be stepped.

9.1.5 Stepper modes

Stepper modes are designed to control gearboxes, mostly 90⁰ steps gearboxes. There is also some support for 60⁰ steppers.

9.1.6 Up Down modes

Up Down modes are inspired by the Zetros (LEGO 42129 set) differential lock command. In the Zetros a sensor-less motor is used, so when you control it, the motor will run for a predefined amount of time and then stop. In Remote Bla Bla, you press plus button, it will run for say half a second and stop. Pressing plus button again does nothing. Pressing minus button will run in the opposite direction for half a second. Pressing it again will do nothing. You can control the amount of time and the power percentage used.

9.2 Reverse direction

When you connect more than one device to the same BLA Mode, both devices will rotate in the same clockwise our counterclockwise direction. Almost all modes have a reverse direction option. This means that the second device will run in the opposite direction of the first device. If there is a third device, it will run in the same direction of the first device. If there is a fourth device, it will run in the opposite direction of the first device. Device's order is defined by ports order: A, B, C, D.

9.3 Autorepeat

In play mode, when it makes sense, keeping a remote button pressed will do autorepeat and increase/decrease the corresponding action. When limits are reached, the remote light blinks to red. When zero position is crossed, the remote light blinks to magenta.

9.4 City Hub Support

City Hub has much less memory than Technic Hub, so it can't run Remote Bla Bla. However, there is a small footprint `RemoteCityBla.py` program that runs in the City Hub, but only Play Mode. To configure a City Hub, you use a Technic Hub to execute the configuration step, using only ports A and B. Since configuration is saved in the Remote, you just need to turn on the City Hub, connect to the remote and play. If the saved configuration does not work in a City Hub, the City Hub will complain by blinking a lot of orange lights and disconnect.

9.5 Saving and sharing configurations

Remote Bla Bla is saved as a readable string in the remote name. So, after building your configuration, you can get it and share with someone else.

To do it, you can use pybricks code interface and run the following simple program. You should use the same pybricks version as the one recommended for Remote Bla Bla.

```
1 from pybricks.pupdevices import Remote
2 print('Connect remote')
3 rem = Remote()
4 print('Remote current name=',rem.name())
5
6 # To set remote name uncomment following line
7 # rem.name('RbA...AAB..... ')
8 print('Remote new name=',rem.name())
```

Lines 1 to 3 ask for you to connect the remote. Line 4 prints remote current name. If it is a Remote Bla Bla configuration string it looks like Rb*xxxxxxxxxxxx* where the xs correspond to the encoded configuration.

Line 7 of this script is used to save a configuration on the remote. Notice that here the line is commented.

You can write anything you want… Remote Bla Bla will only work with a proper configuration string. In this example, the configuration is for one BLA mode.

You can even use a Hub with Remote Bla Bla on its firmware to run this program. When you turn completely off a hub (no blinking light) and then you click to turn on, you get a blue light. At that moment if you click again you go to Remote Bla Bla mode. But if you don't click, you can connect to pybricks code interface.

9.6 Turn off

To tur off the hub press the hub button for one second.

9.7 Auto turnoff

If you do not touch any button for 5 minutes, the hub auto shuts down. Even if some motor is running (maybe arguable in a GBC scenario…).

10BLA Modes

Next table describes all existing BLA Modes. Configuration is chosen by selecting the buttons in the remote:

1. RP – Right Plus
2. LP – Left Plus
3. RM – Right Minus
4. LM – Left Minus
5. SRP – Shift Right Plus
6. SLP – Shift Left Plus
7. SRM – Shift Right Minus
8. SLM – Shift Left Minus
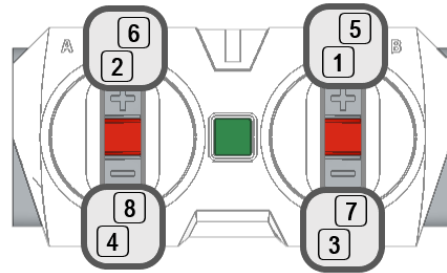
Plus buttons will select CLOCKWISE motor direction. Minus buttons will select COUNTERCLOCKWISE motor direction.

If you connect more than one motor and choose Reverse Direction option (Shift-Green button), first motor will rotate as selected in previous sentence, and second motor in the opposite direction. And so on for next motors.

In the table, each BLA Mode is also numbered. This way, you can specify a BLA Mode in a simple way. For instance, BLA Mode 9.4 is BLAStepperLimits90_180, counterclockwise, coast stop, 90º stepper.

Remote *BLA BLA* Modes									
			1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
BLASimpleMotor Steady cyan	1	Simple motor. Button pressed rotates, button released stops. Can choose motor duty power and direction.								
Allows sensor less motors		Power	100%	80%	100%	80%	60%	40%	60%	40%
		Direction	↻	↻	↺	↺	↻	↻	↺	↺
BLAStepsMotor Steady yellow	2	Steps motor. Pressing button will rise power until maximum number of steps is reached.								
Allows sensor less motors		Steps	7	5	7	5	3	9	3	9
		Direction	↻	↻	↺	↺	↻	↻	↺	↺
BLASpeedMotor Steady gray	3	Speed controlled motor. Button pressed rotates, button released stops. Can choose motor speed percentage and direction. Each motor has a maximum speed, based on philohome.com specs. Using the sensors, the motor will try to keep the defined speed.								
		Speed	100%	80%	100%	80%	60%	40%	60%	40%
		Direction	↻	↻	↺	↺	↻	↻	↺	↺
BLAStepSpeedMotor Steady orange	4	Speed controlled motor with steps. Pressing button will rise speed until maximum number of steps is reached. Each motor has a maximum speed, based on philohome.com specs. Maximum speed is divided by the number of steps. Using the sensors, the motor will try to keep the defined speed of each step.								
		Steps	7	5	7	5	3	9	3	9
		Direction	↻	↻	↺	↺	↻	↻	↺	↺
BLAVariMotor Steady blue	5	Speed controlled motor. Pressing button will rise speed by a given increment (specified in degrees/second) until maximum possible speed. Releasing the button will keep the speed. Autorepeat feature works faster on this mode (100ms).								
		Increment	50	10	50	10	80	120	80	120
		Direction	↻	↻	↺	↺	↻	↻	↺	↺
BLAVariPressMotor Steady magenta	6	Speed controlled motor. Pressing button will rise speed by a given increment (specified in degrees/second) until maximum possible speed. Releasing the button stop the motor. Autorepeat feature works faster on this mode. Increments in deg/s								
		Increment	50	10	50	10	80	120	80	120
		Direction	↻	↻	↺	↺	↻	↻	↺	↺

Remote *BLA BLA* Modes									
			1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -

BlaSteering_1_3
Steady green — 7

Steering motor. Finds steering limits by stalling, and centers. If one step, pressing buttons steers, releasing buttons returns to center. If more than one step, each button moves forward/backward one step.

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Steps	1	1	1	1	3	3	3	3
Direction	↻	↻	↺	↺	↻	↻	↺	↺
Stop	Hold	Coast	Hold	Coast	Hold	Coast	Hold	Coast

BlaSteering_5_7
Steady white — 8

Like BlaSteering_1_3 but 5 or 7 steps.   b

BLAStepperLimits90_180
Slow blink cyan — 9

Adjustable gearbox stepper. Finds lower limit by stalling, finds upper limit by stalling, adjusts limits to step size multiple (90º or 180º) and finds number of speeds in gearbox. Plus button increases speed, minus button decreases speed. Works with one device only.

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Direction	↻	↻	↺	↺	↻	↻	↺	↺
Stop	Hold	Coast	Hold	Coast	Hold	Coast	Hold	Coast
Step	90º	90º	90º	90º	180º	180º	180º	180º

BlaServo90_1_3
Slow blink yellow — 10

Servo motor 90º. 0º is on device absolute zero angle. If one step, pressing buttons rotates 90º, releasing buttons returns to center. If more than one step, each button moves forward/backward one step, until maximum of 90º.

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Steps	1	1	1	1	3	3	3	3
Direction	↻	↻	↺	↺	↻	↻	↺	↺
Stop	Hold	Coast	Hold	Coast	Hold	Coast	Hold	Coast

BlaServo90_5_7
Slow blink gray — 11

Like BlaServo90_1_3 but 5 or 7 steps.

BLAStepperZero90_2_3
Slow blink orange — 12

Gearbox 90º stepper with 2 or 3 speeds (1 or 2 steps), starting in device's absolute 0 angle. Plus button increases gearbox selector position, minus button decreases gearbox select position.

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Steps	1	1	1	1	2	2	2	2
Direction	↻	↻	↺	↺	↻	↻	↺	↺
Stop	Hold	Coast	Hold	Coast	Hold	Coast	Hold	Coast

BLAStepperZero90_4_5
Slow blink blue — 13

Like BLAStepperZero90_2_3 but 4 or 5 speeds (3 or 4 steps).

BLAStepperZero90_6_7
Slow blink magenta — 14

Like BLAStepperZero90_2_3 but 6 or 7 speeds (5 or 6 steps).

BLAStepperZero90_8_9
Slow blink green — 15

Like BLAStepperZero90_2_3 but 8 or 9 speeds (7 or 8 steps).

BLAStepperInit90_2_3
Slow blink white — 16

Gearbox 90º stepper with 2 or 3 speeds (1 or 2 steps). Finds lower limit by stalling, adjusts limits 90º multiple starting. Plus button increases gearbox selector position, minus button decreases gearbox select position.

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Step	1	1	1	1	2	2	2	2
Direction	↻	↻	↺	↺	↻	↻	↺	↺
Stop	Hold	Coast	Hold	Coast	Hold	Coast	Hold	Coast

BLAStepperInit90_4_5
Medium blink cyan — 17

Like BLAStepperInit90_2_3 but 4 or 5 speeds (3 or 4 steps).

BLAStepperInit90_6_7
Medium blink yellow — 18

Like BLAStepperInit90_2_3 but 6 or 7 speeds (5 or 6 steps).

BLAStepperInit90_8_9
Medium blink gray — 19

Like BLAStepperInit90_2_3 but 8 or 9 speeds (7 or 8 steps).

BLAStepperInit60_3_4
Medium blink orange — 20

Like Gearbox BLAStepperInit90_2_3 but with a 60º step and 3 or 4 speeds (2 or 3 steps).

BLAStepperInit60_5_6
Medium blink blue — 21

Like Gearbox BLAStepperInit90_2_3 but with a 60º step and 5 or 6 speeds (4 or 5 steps).

BLAUpDown100
Medium blink magenta — 22

Up Down motor. Pressing plus button will spin motor for a given amount of time. Pressing it again does nothing. Pressing minus button will spin motor in the opposite direction for the same amount of time. Pressing it again does nothing. Used to control on/off like gearboxes, with sensor less motors. Motor spins at a duty power of 100%.

Allows sensor less motors

	1 RP +	2 LP +	3 RM -	4 LM -	5 SRP +	6 SLP +	7 SRM -	8 SLM -
Time	0.3s	0.5s	0.3s	0.5s	1s	2s	1s	2s
Direction	↻	↻	↺	↺	↻	↻	↺	↺

BLAUpDown80
Medium blink green — 23

Like BLAUpDown100 but motor spins at a duty power of 80%.

BLAUpDown60
Medium blink white — 24

Like BLAUpDown100 but motor spins at a duty power of 60%.

10.1 BlaBlaCodes

BlaBlaCodes are the configuration codes of each RemoteBlaBla configuration, the Rbxxxxxxxxxxxxx strings as described earlier. Here is an example of a BlaBlaCode for the LEGO 42129 Zetros:

- **Drive**: BLASpeedMotor 3.1
- **Steering**: BlaSteering_1_3 7.1
- **Diff Lock**: BLAUpDown 22.4

- **BlaBlaCode**: `RbEMs.AFBBiR..`

11 Issues

11.1 Tested devices

Remote Bla Bla has only been tested with:

- WeDo 2.0 Medium Motor
- Technic L Motor
- Technic XL Motor
- Technic Large Angular Motor

These are the only ones I have. There also is no special support for Powered Up lights because I don´t have any… but it should be easy to add some support to it .

11.2 Connecting WeDo Medium Motor

When in config mode, devices are detected. Usually, with sensor motors there are no problems. However, for some reason, the sensor-less WeDo Medium Motor sometimes hangs, especially if hub batteries are weak. Device detection is always done with the hub light in red. So, if you r hub gets stuck with a red light it might be due to this. Try to do your configuration with fresh batteries.

11.3 Disconnecting devices

In the process of configuring devices, disconnecting a device is an expected operation. With pybricks v3.1.0 on 2021-12-16, when you disconnect a device that has been used for something (play or just configure a BLA mode), the program will crash. There is no way to get around this… just connect the hub again… this did not happen in the previous version. I have tested newer developer versions of pybricks and the behavior seems to have changed… though I am not fully convinced. Let's wait for the next stable or beta release.

11.4 Hold vs Coast

The ability to define things stop modes in hold and coast also contributes to the existence of many BLA Modes. One could argue that coast is not really needed…