Griffin Diagnostics User Guide

Initialization Sequence

1. Power up both phones (Driver Station and Robot Controller)
2. Install the Robot Controller into the robot.
3. Connect the Robot Control phone to the Rev Robotics Expansion Hub #2 (facing the tail of the robot) using the USB cable. The Robot Controller program *should* start up automatically. (If it does not, start it manually.)
4. Plug a Logitech F310 Game Controller into the phone using a multiple type-A female input to micro-B male output hub.
5. Start the FTC Driver Station software on the Driver Station phone.
6. If the Driver Station and Robot Control phones are properly matched, the Driver Station phone *should* connect to the Robot Control phone automatically.
7. Select the TeleOp menu and the Griffin Diagnostics menu entry.
8. Press the Init button on the Driver Station pnone.
9. Press the Start button (white triangle pointing right) on the Driver Station phone.

State Transitions

The Diagnostics operation mode maintains a small state machine. The driver may transition forward to the next state by pressing the Start button on the control pad. Similarly, the driver may transition to the previous state by pressing the control pad Back button.

Note 1: Only Control Pad 1 affects the behavior of the robot, although the functions of both gamepads are tested in the GAMEPAD state.

Note 2: Hardware (e.g., motors, servos) is not initialized until it is used. This prevents problems in one subsystem from getting in the way of diagnosing problems with another subsystem.

State 1: START

The START state does nothing. No input is accepted other than to transition to the next or previous state.

State 2: GAMEPAD

The GAMEPAD state allows the driver to test all of the functions on both gamepads. As each button is pressed, it is displayed on the Driver Station phone. Triggers and joysticks also provide numerical values appropriate to how the driver is pressing them.

State 3: ROTATE

The ROTATE state tests the drive motors (those used in locomotion) in their simplest configuration. All drive motors are given the same power in each direciton. The buttons used are:

1. ‘X’ to rotate in a counterclockwise direction.
2. ‘B’ to rotate in a clockwise direction.

State 4: MOTION

The MOTION state is used to test the coordination of the motors under forward, backward, and lateral motion. Only a single power setting is used. The controls are:

1. 'Y' for forward motion,
2. 'A' for reverse motion,
3. 'X' for lateral motion to the left (port side),
4. 'B' for lateral motion to the right (starboard side).

State 5: CLAW

The CLAW state is used to test the motion of the claw and its lift. The controls are:

1. 'X' to open the claw,
2. 'B' to close the claw,
3. 'Y' to raise the claw,
4. 'A' to lower the claw.

State 6: TAIL

The TAIL state is used to test the motion of the tail. The controls are:

1. DPAD Up to raise the tail,
2. DPAD Down to lower the tail.

State 7: BEAM (Proposed)

The BEAM state is used to test the motion of the beam and its claw. The controls are:

1. DPAD Left to extend the beam,
2. DPAD Right to retract the beam,
3. DPAD Up to swivel the beam claw up,
4. DPAD Down to swivel the beam claw down,
5. 'X' to open the beam claw,
6. 'B' to close the beam claw.

State 8: ULTRASONIC

The ULTRASONIC state is used to test the function of the ultrasonic range sensors. Use any of 'A', 'B', 'X' or 'Y' to view the readings on the sensors. The sensors are not initialized until they are used, so robots without those sensors may still function as long as the sensors are declared in the robot configuration.

State 9: COLOR

The COLOR state is used to test the function of the Modern Robotics Color/Distance sensor on the tail of the robot. Use any of 'A', 'B', 'X' or 'Y' to view the readings on the sensors. The sensors are not initialized until they are used, so robots without those sensors may still function as long as the sensors are declared in the robot configuration.

State 10: IR

The IR state is used to test the function of the infrared range sensors. Use any of ‘A’, ‘B’, ‘X’ or ‘Y’ to view the readings on the sensors. The sensors are not initialized until they are used, so robots without those sensors may still function as long as the sensors are declared in the robot configuration.

State 11: VUFORIA

The VUFORIA state is used to test the function of the VuForia configuration and phone camera. To configure and activate, press the ‘A’ button.

State 12: IMU

The IMU state is unused at this time, but will be used at a later time.

State 13: DONE

Like the START state, the DONE state does nothing. No input is accepted other than to transition to the next or previous state.