

## Pause/Resume

The diagram illustrates the logic for pausing and resuming motor power assignment. It features several interconnected components:

- Power Message:** A cyan box containing an envelope icon and a document icon labeled "ROS". It is labeled "kobuki\_msgs/MotorPower".
- Go/Stop Switch:** A switch mechanism with two inputs: a green box labeled "1" with "Go" below it, and a red box labeled "0" with "Stop" below it. The switch is currently in the "Go" position.
- Bus:** A blue box labeled "Bus" with "State" below it. It is also labeled "Motor power assignment".
- Power Publish:** A cyan box containing an envelope icon and a document icon labeled "ROS". It is labeled "rclcpp::Publisher<MotorPower>".

The flow of data is as follows:

- The **Power Message** box is connected to the **Bus** box.
- The **Go/Stop Switch** is connected to the **Bus** box.
- The **Bus** box is connected to the **Power Publish** box.

# Reset

The diagram illustrates the reset process. It starts with a box labeled "Empty" containing a trash can icon and a document icon labeled "ROS". An arrow points from this box to a box labeled "Reset". The "Reset" box contains a document icon with a trash can symbol on it, and a cloud icon labeled "ROS".

The diagram illustrates a ROS2-based navigation system for a mobile robot. It consists of several input modules, a central robot model, and output modules.

**Input Modules:**

- Power:** A module that receives a "IsNew" signal and a "Map" message. It outputs a "State" signal to a "unit82double" block.
- Cliff:** A module that receives a "IsNew" signal and a "Map" message. It outputs "Sensor", "State", and "Bottom" signals to a "unit82double" block.
- Bumper:** A module that receives a "IsNew" signal and a "Map" message. It outputs "Bumper" and "State" signals to a "unit82double" block.
- Odometry:** A module that receives a "IsNew" signal and a "Map" message. It outputs "X", "Y", "X", "Y", "X", "Y", and "Z" signals to a "Quat2Eul" block.
- IMU:** A module that receives a "IsNew" signal and a "Map" message. It outputs a "Lowpass" signal to a "Lowpass" block.

**Processing Blocks:**

- unit82double:** A block that receives signals from the Power, Cliff, and Bumper modules. It outputs "Power", "CliffSensor", "CliffState", "CliffBottom", "Bumper", "BumperState", "PosX", "PosY", "Yaw", and "AccX" signals to the robot model.
- Quat2Eul:** A block that receives signals from the Odometry module. It outputs a "Z" signal to the robot model.
- Lowpass:** A block that receives a signal from the IMU module. It outputs a "LPF-X" signal to the robot model.

**Robot Model:** A central block representing the robot. It receives signals from the unit82double, Quat2Eul, and Lowpass blocks. It outputs "Linear" and "Angular" signals to the Velocity Assignment block.

**Output Modules:**

- Velocity Assignment:** A block that receives "Linear" and "Angular" signals. It outputs a "Velocity Message" and a "Velocity Publish" message.
- Velocity Message:** A module that receives a "Velocity Message" and outputs a "Linear.X" signal to the Velocity Assignment block.
- Velocity Publish:** A module that receives a "Velocity Publish" message and outputs a "base/commands/velocity" message.

