

Assignment 4

Spawn a Sphere in an RVIZ environment at(0,0,0). the altitude (the Z value) of the sphere is controlled by a value being published on a topic called /potentiometer. An Arduino with a potentiometer connected is the node publishing the value. The Arduino reads the potentiometer value and publishes it on the /potentiometer topic (The range will be between 0 and 1023). The Z value is calculated by mapping the 0 -> 1023 to a range z-min -> z-max determined from a rosparam file

```
Int: zmin  
Int: zmax  
float: tolerance
```

Example: zmin = 0 and zmax = 10 and the value being published is 511 then the Z coordinate of the Sphere will be 5.

Note: z-min could be negative

The /control node calculates the Z value and applies it to the sphere as well as publishing it on a different topic /altitude which the Arduino is subscribed to. When the Z value is nearing 0 +- tolerance, the built in LED will flash continuously, other than that the LED will be flashing on and off in 150ms intervals. Note that the tolerance is also determined from the rosparam file and should be published to the Arduino within the /altitude topic.

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