1. Position hold algorithm

d1

d2

goal

(imuX, imuY)

East

x

North

y

earthYaw

BearingToGoal

UAV is at more than d2 from goal, control is activated and is proportional to   
distanceToGoal / maxHoveringRadius. Control remains active until UAV distance to goal is greater than d1. As goal distance to goal is less than d1, control is deactivated.

1. Validation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (imuX, imuY)  earthYaw | (d1, 0) | (0, d1) | (-d1, 0) | (0, -d1) |
| 0 | Pitch=-1,roll=0 | Pitch=0,roll=-1 | Pitch=1,roll=0 | Pitch=0,roll=1 |
| 90 | Pitch=0,roll=1 | Pitch=-1,roll=0 | Pitch=0,roll=-1 | Pitch=1,roll=0 |
| 180 | Pitch=1,roll=0 | Pitch=0,roll=1 | Pitch=-1,roll=0 | Pitch=0,roll=-1 |
| -90 | Pitch=0,roll=-1 | Pitch=1,roll=0 | Pitch=0,roll=1 | Pitch=-1,roll=0 |