

1) What are the computational advantages of using logodds when generating our occupancy grid?

1. The probability is usually very small (close to zero) which is hard to compute the multiplication. Using logodds rather than probability makes it easier for computer. It is computationally efficient.
2. It is numerically stable.

2) Is the angle phi in our Spherical to Cartesian calculation the same as the polar angle in standard Spherical coordinates? Why?

1. No
2. In our system, the angle phi is the angle of incidence of the current layer's point to the ground plane (ray to the ground plane). However, in the standard spherical coordinates, the phi angle is the angle from z axis (ray to the vertical axis), ie., $\phi_{\text{standard}} + \phi_{\text{us}} = 90$ degree.