

Challenge 2 Report




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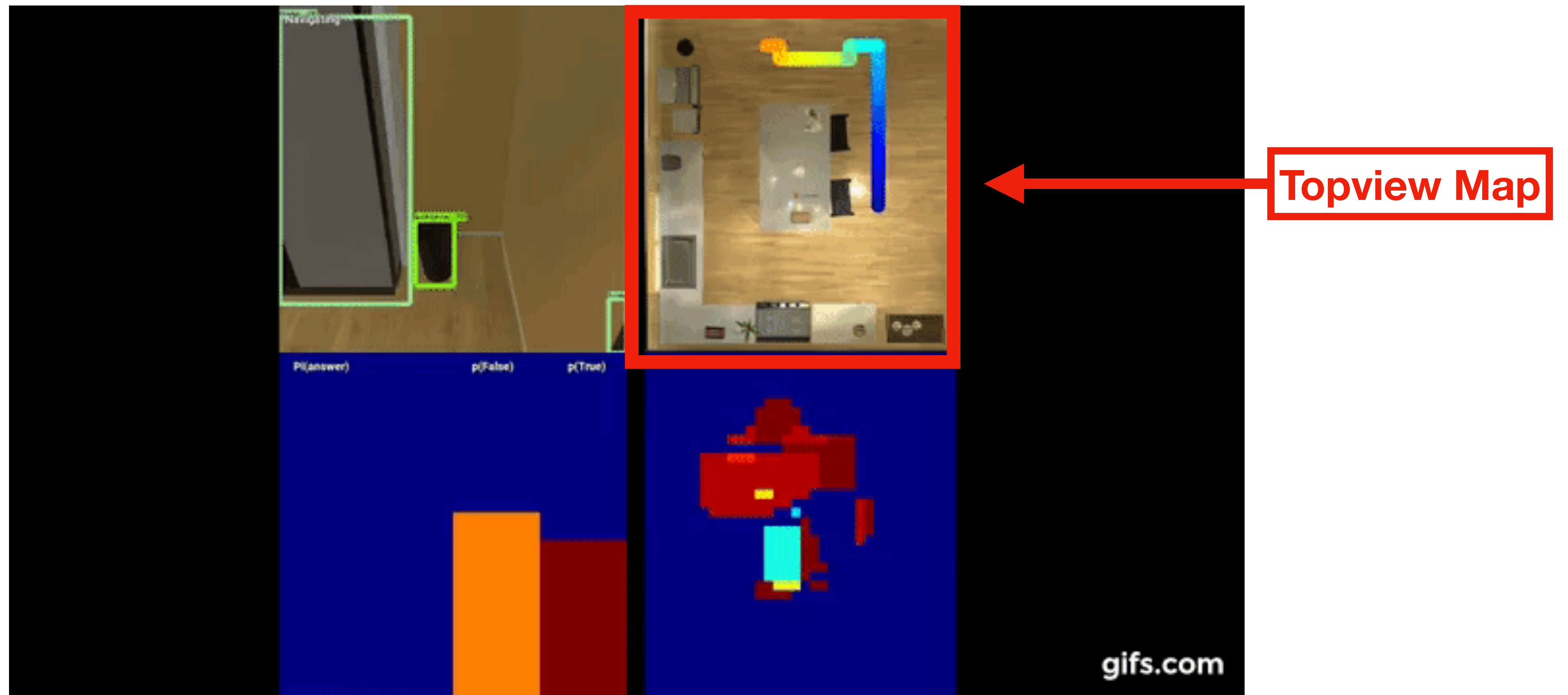
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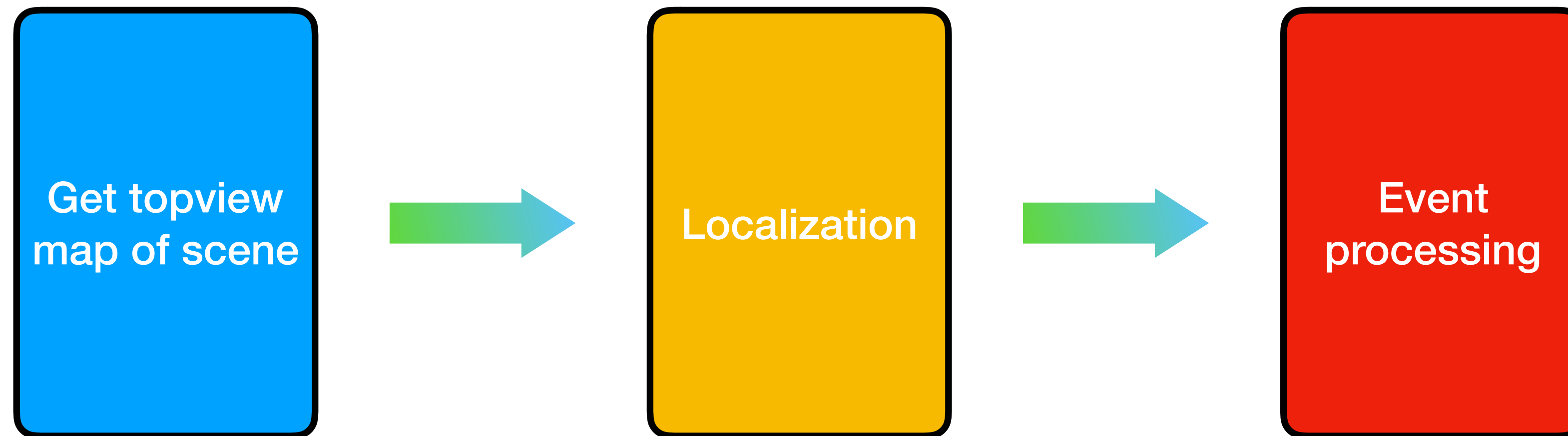


Problem

Challenge 02: *Drawing Trajectories on Top-view Map of the room.*

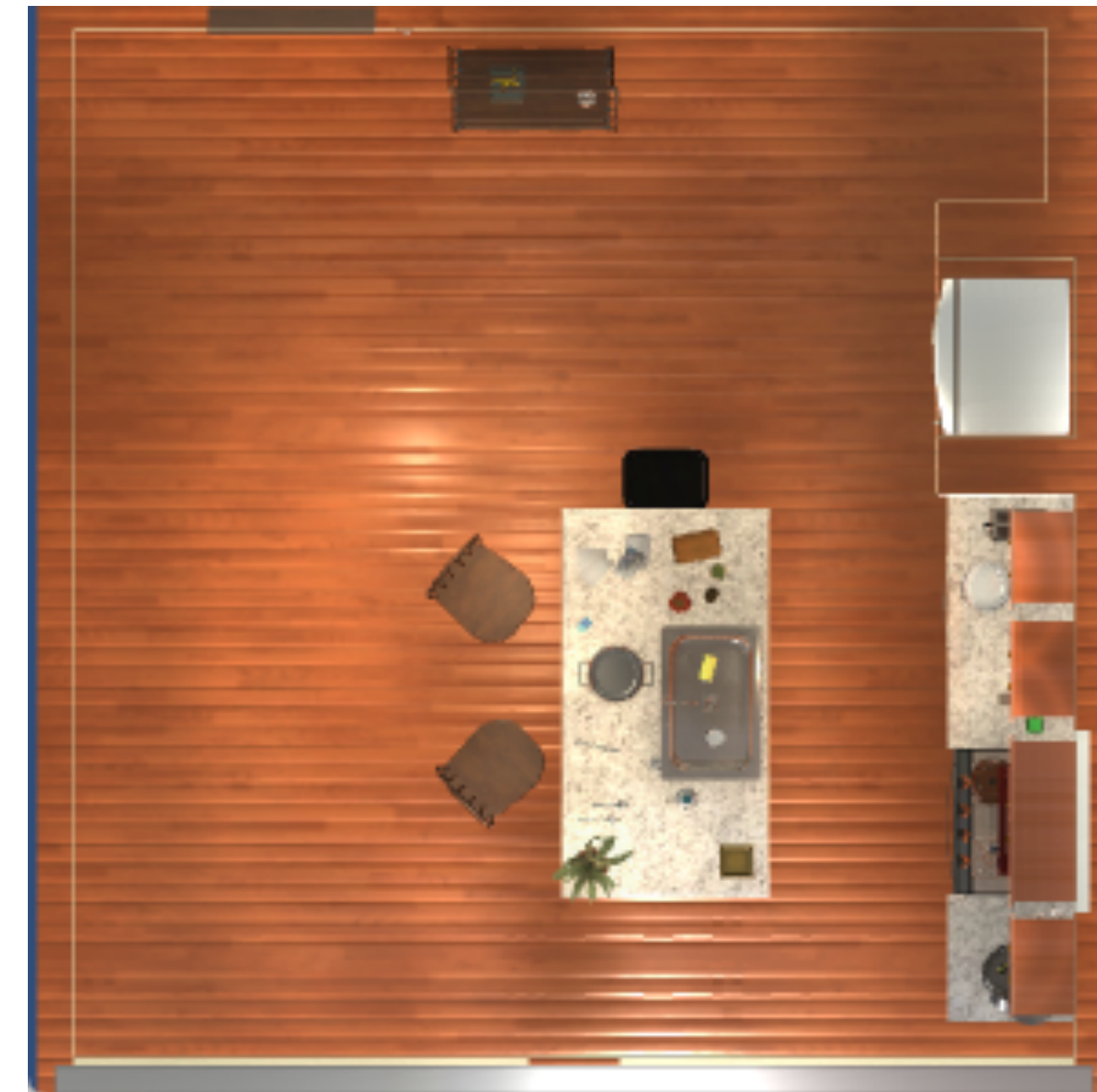


Solution



Get Topview Map

```
event = controller.step(dict(action='ToggleMapView'))
```



Run the code above once to get a top view and again to get back to the normal view

Localization

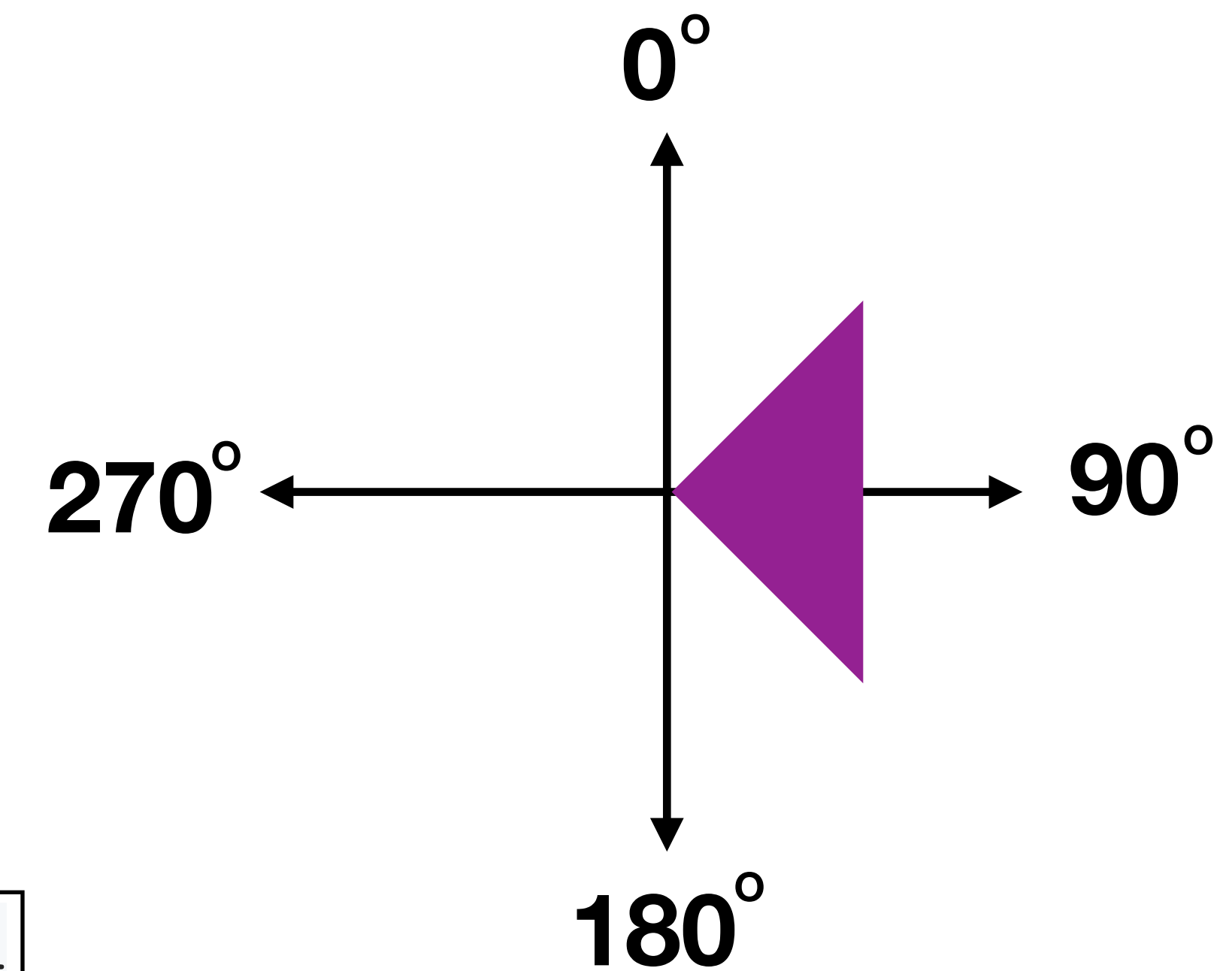
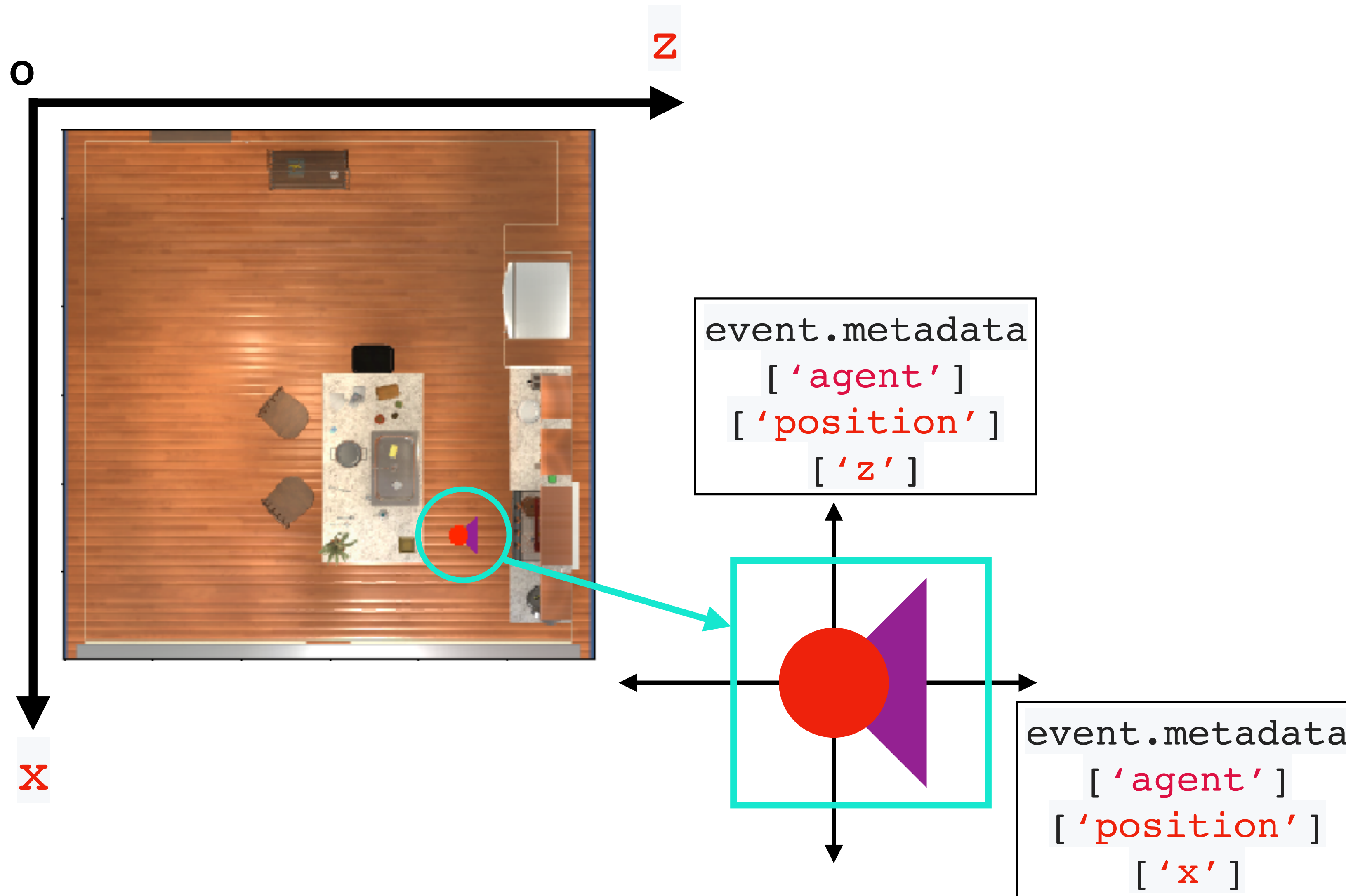


TopView Map



TopView Map and Robot position

Localization

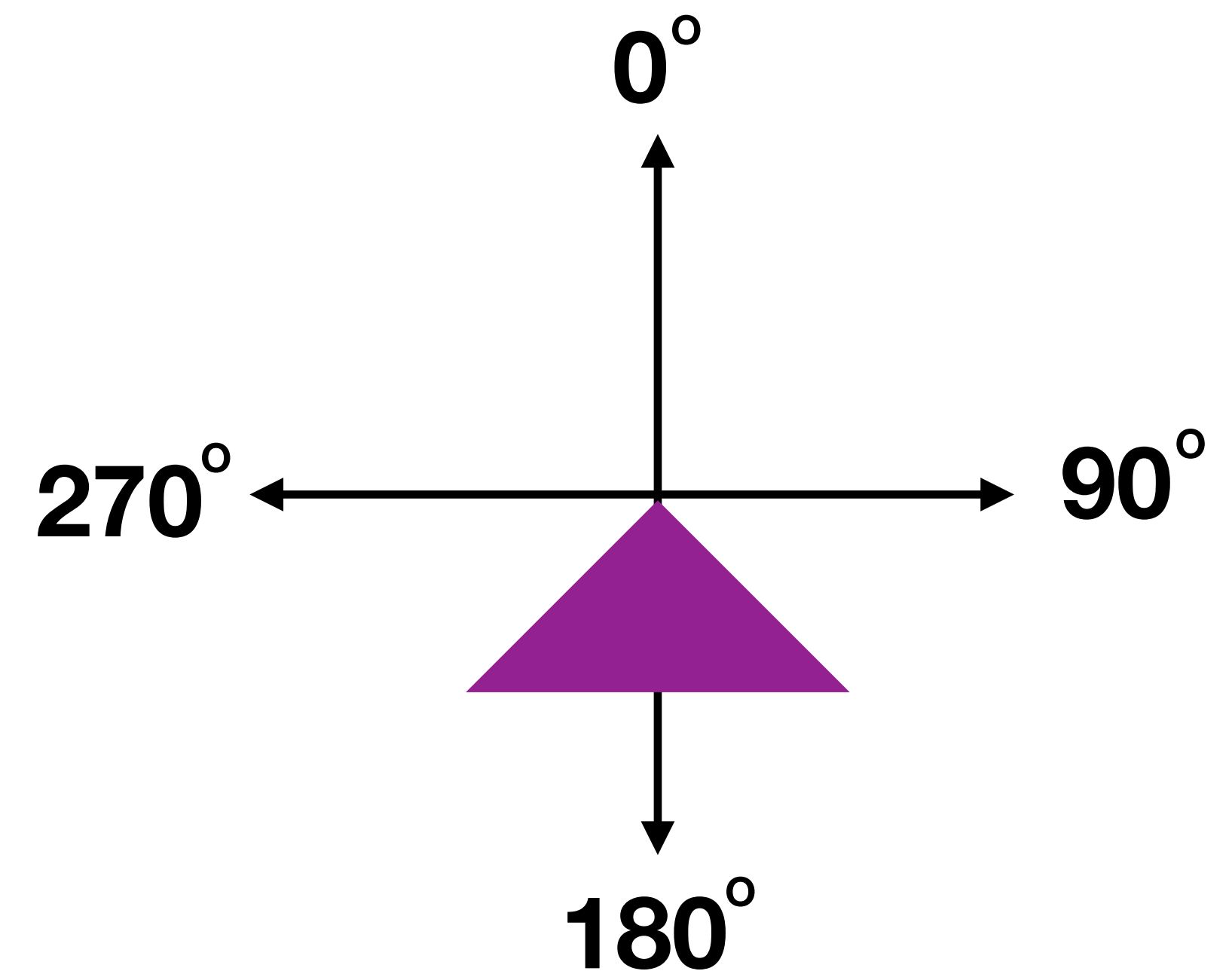


Localization



FloorPlan28

```
event.metadata[ 'agent' ]  
[ 'rotation' ][ 'y' ]
```



Localization

Localization

Using **ThorPositionTo2DFrameTranslator** class
to convert agent's local position to global
position

<https://github.com/allenai/ai2thor/issues/124>

Rotation

Two dimensions [edit]

In two dimensions, to carry out a rotation using a matrix, the point (x, y) to be rotated counterclockwise is written as a column vector, then multiplied by a **rotation matrix** calculated from the angle θ :

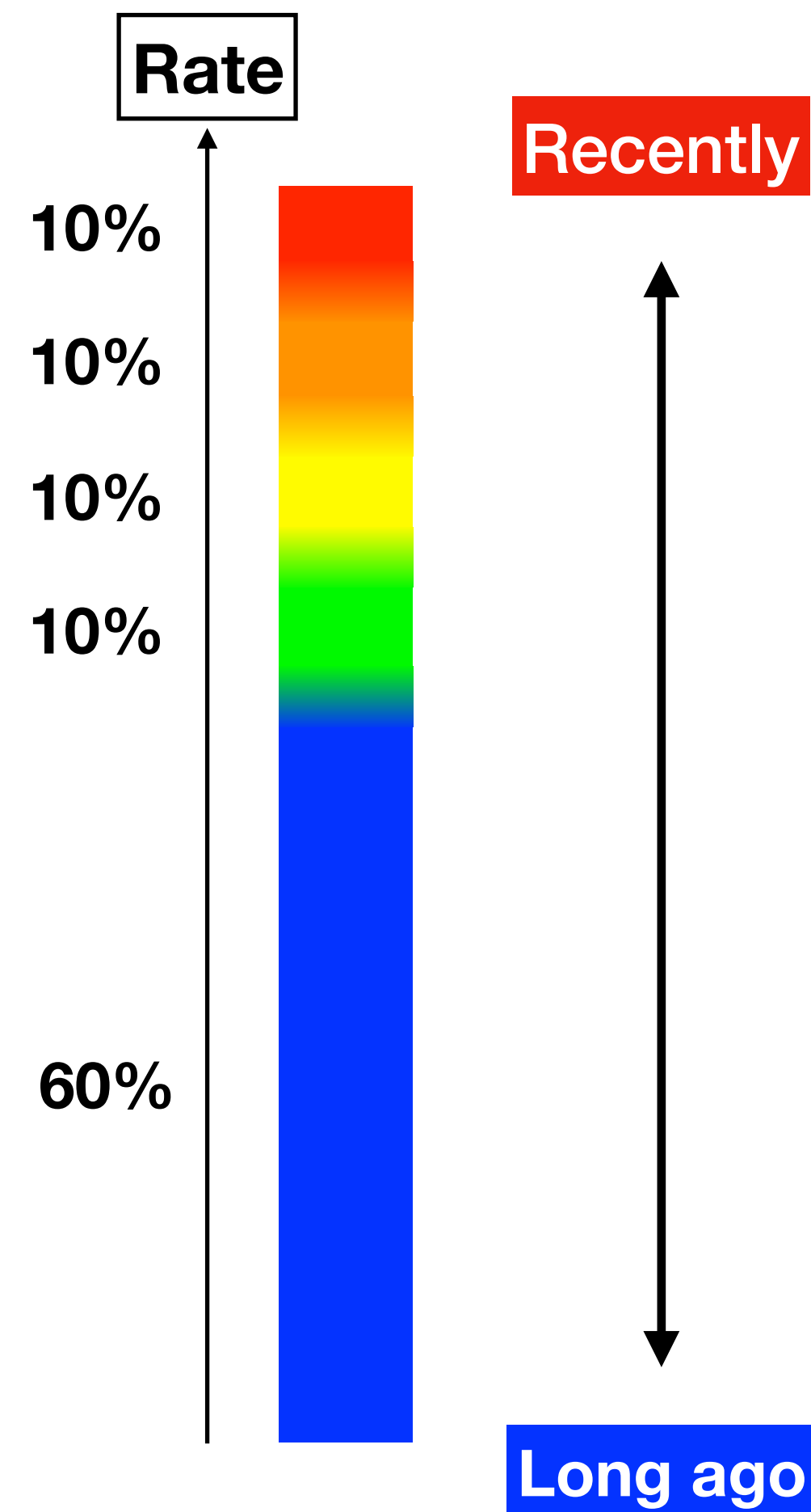
$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}.$$

The coordinates of the point after rotation are x', y' , and the formulae for x' and y' are

$$\begin{aligned} x' &= x \cos \theta - y \sin \theta \\ y' &= x \sin \theta + y \cos \theta. \end{aligned}$$

[https://en.wikipedia.org/wiki/Rotation_\(mathematics\)](https://en.wikipedia.org/wiki/Rotation_(mathematics))

Event Processing



Trajectories in FloorPlan28



List “listCircle” saves all position that the agent visited

Demo

Let's enjoy

THANKS FOR

LISTENING