Design Challenge 3: Guide Me Home

1  The Challenge

The robots are a long way from home, with many twists and turns along the way. Thankfully, there are many friendly robots on the path who are happy to lead your robot to safety.

When a robot sends a message it include the index of which sensor the message is coming from. When a robot recieves a message, it gets both the message and the trasmitter index. The robot packages this message along with which sensor index the message was sent on, and the sensors the message was recived on. Using this a robot can calculate its postion relative to that of the other robot and the navigates towards it. Each guide robot counts its number of hops from the goal robot. By always navigating to a robot with lower hops than itself, your robot can eventaully make its way safely home.

2  Follow Guide Behavior

These are the functions needed to complete this design challenge:

1. getHops(): Determines if there is an obstacle in front of the robot. Input: None, Output: True if an obstacle is in front of the robot, False if otherwise.

2. ledSet(Color, Index, Brightness): Sets a single LED of color 'color' at index 0-4. Output: value between 1 and 1023 indicating the amount of light present at the input sensor.

3. behControl.nbrGoal(): If a goal robot is a neighbor of the robot, return True, else return False. Input: None, Output: True if a goal robot is detected, False if otherwise.
You will write the function `followLowGuide()`.

We already know how to use `getHops()` to find our lowest hops neighbor. Unless we see the goal, we want to drive towards this robot. This behavior will use `getBearing(neighbor)` and `getHops()`. You will need to implement if, elif statements to make decisions about turning and driving based on the output of `getBearing(neighbor)`. It will take no inputs and return True if your robot can see a guide robot with lower hops and False if it does not.

### 2.1 Pseudocode

Provide proof of pseudocoding before you being programming and recieve +5 points on the design challenge.