Activating Micro-bots:

Requirements:

- Initially, the robot should be in the active state in order for it to deploy the micro-bots and should be able to switch between ‘automation’ and ‘manual’ modes.
- If the robot is initially active in the automation state:
  - It should analyze its environment for some specific time, and when it realizes it is too big of a size to move further, or if in a situation where it feels trapped, it can initiate the ‘activate micro-bots’ function and process data received from the micro-bots.
  - It should be able to move automatically when it receives information about a possible entry point.
  - It should have the option to be overridden to manual state.
- If the robot is initially active in the manual state:
  - the user can choose to initiate the ‘activate micro-bots’ state and also, process data received from the micro-bots.
  - Keeping the option of all other abilities of the robot to function(its motion, manipulating objects etc.)
  - The user has the option to manipulate objects.
- If the user chooses to manipulate objects:
  - The robot should be able to grasp objects (to move objects)

- The robot should be able join objects (maybe by welding)
- The robot should be able to separate objects (maybe using some laser techniques)
- The robot should be able to drill through objects (probably using some drilling techniques)
- The option to cancel ‘manipulating objects’.

- When the robot deploys the micro-bots:
  - A chamber in the robot opens up to deploy atleast 5 microbots.
  - The micro-bots should be able to move, spin, roll, slide in all directions automatically.
  - Scan for obstacles atleast in 180° vicinity and avoid obstacles to move to nearest path.
  - When it can’t move in any direction in its 180° vicinity, it should return back to the last position where it had more than one route to choose from and choose the second nearest path and repeat.
  - When it is able to compute of having no other possible routes, it should be able to return to the robot.
  - All of the micro-bots should be able to communicate with the robot.
  - The micro-bot should be able to sense its environment through obstacle findings and feed this data to the robot for it to analyze these data and create a map.
  - The micro-bots should be able to identify victims and feed this data to the robot.

- The micro-bots should go ‘idle’ if the robot is turned off during its process.
- A ‘recall’ option for the micro-bots to return to the robot.