Problem statement (Kilobots)

1. Test algorithms available on the Kilobotics website.
   a. Homework: Explore www.kilobotics.com website. Read chapter 3 of Kilobotics manual [1]. Go through [2].
2. Design a robust orbiting algorithm using the finite state machine framework.
   a. Homework: Draw a flowchart of the proposed algorithm.
3. Given a randomized starting positions of the kilobots, design a scheme to assign gradient value (refer Fig. 2 in [3]) to the builder robots.
   a. Homework: Read [3]. Draw a flowchart for the proposed algorithm.
4. Select the outermost kilobot (after assigning the gradient values) and make it reach near the reference robots using the edge-following/orbiting algorithm.
   a. Homework: Draw a flowchart for the proposed algorithm.
5. (Bonus) Integrate the above scheme with the shape formation algorithm from last year.
   a. Homework: Read [4].

Reference
[1] KTeam, Kilobot user manual.
[2] M Rubenstein, R Nagpal, Kilobot: A Robotic Module for Demonstrating Behaviors in a Large Scale (2^10 Units) Collective, 2010.
[3] M Rubenstein et al., Programmable self-assembly in a thousand-robot swarm, 2014.
[4] M Gauci et al., Programmable Self-disassembly for Shape Formation in Large-Scale Robot Collectives, 2018.