Challenges

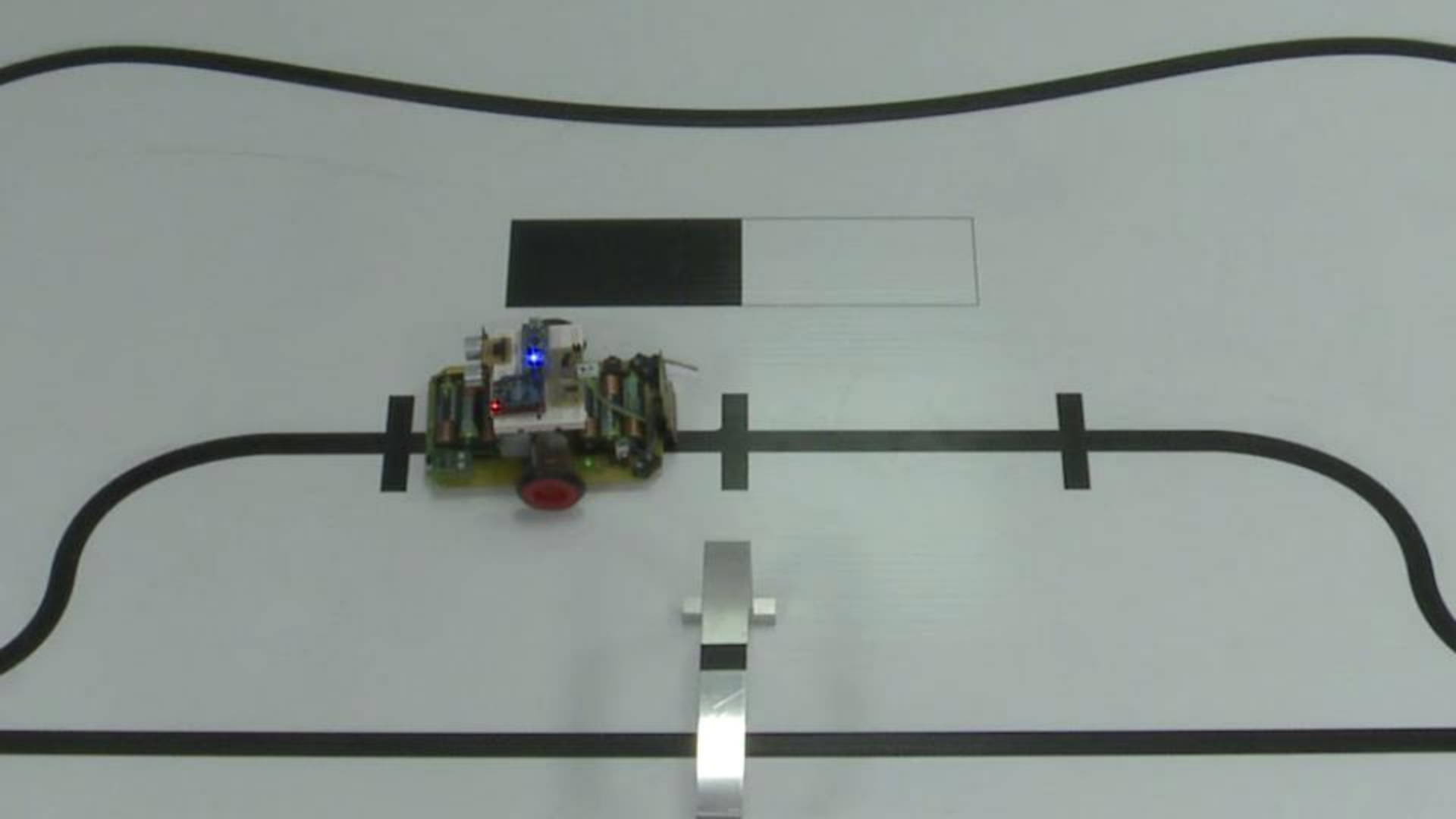
Engineering Design-II

Challenges ?

- After having fundamentals knowledge of this course, three challenges have been assigned to each group of students.
- Each group needs to perform those challenges that are based on their hardware and software skills learnt from this courses.
- Challenges includes:
  - Arduino programming
  - IR-Sesnors
  - Ultrasonic
  - X-bee communication
  - Transmitter and Receiver
  - Gantry detection
  - Parking

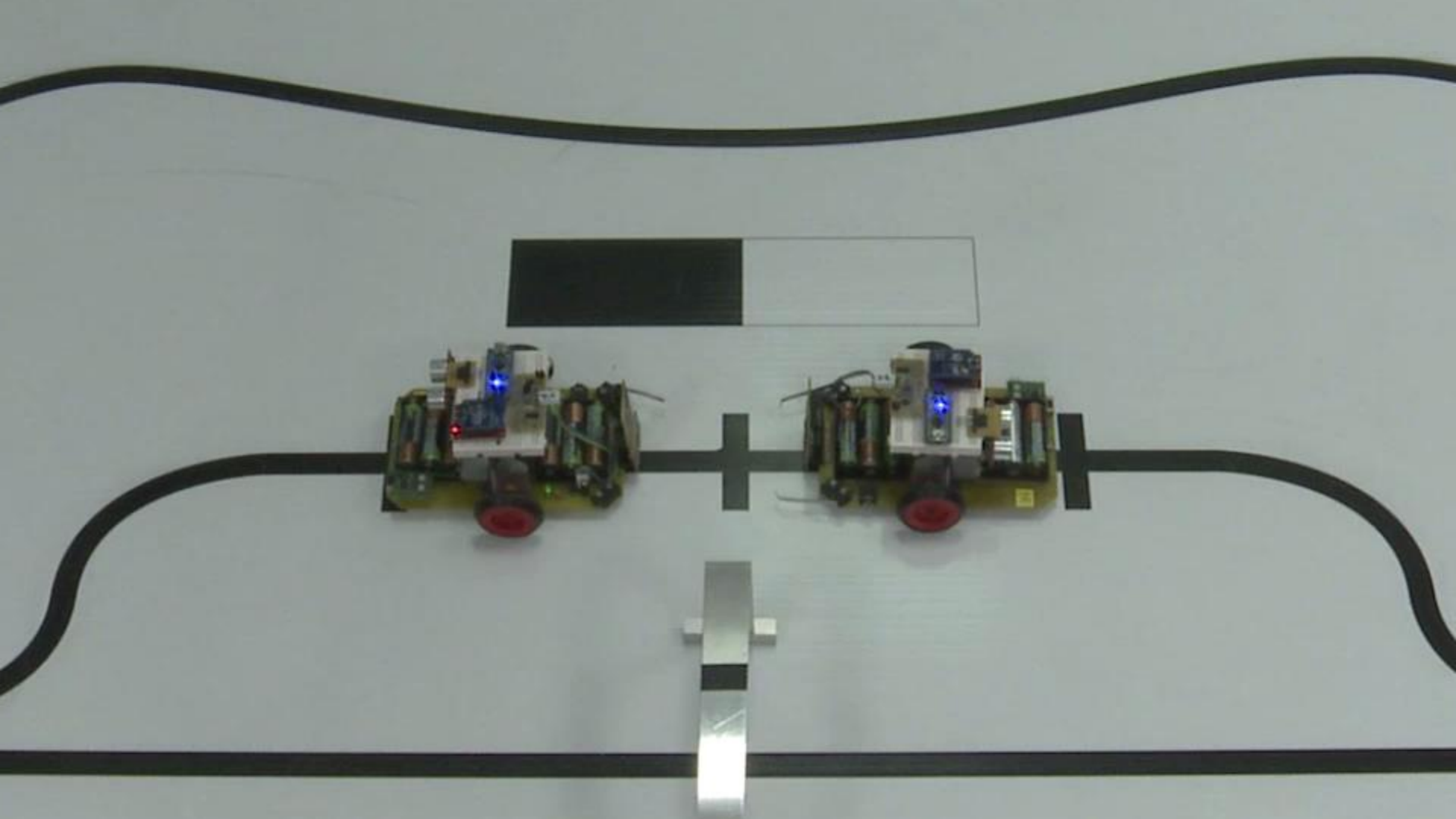
Bronze Challenge:

- Single buggy capable of following main track twice in a clockwise direction under full supervisory control and obeying the "Rules" of the track.
- Buggy must be capable of detecting an obstacle whilst following the track, coming to a temporary halt if it does. It proceeds automatically when the obstacle is removed.
- The buggy must safely park in the parking bay after the two loops.
- No external end-user manual control input is permitted once the initial start is signaled.
- Messages transmitted to control your buggy, and messages received from the buggy must be displayed on coordinator screen.
- You must also display onscreen the state of the track and buggy at each gantry stop.



Sliver Challenge:

- Two buggies on track going in opposite directions and following the “Rules” of the track.
- The first buggy out of the parking lane goes in a clockwise direction until it reaches gantry 3.
- The second buggy then goes in an anticlockwise direction once around track and parks.
- The first buggy then completes the loop and parks safely.
- Either buggy must be capable of detecting an obstacle and temporarily halting until the obstacle is removed.
- Both buggies under full supervisory control.
- No external end-user manual control input is permitted once the initial start is signaled.
- Again, control messages and state of the track and buggies must be displayed on screen.



Gold Challenge:

- The Gold challenge is the same as the Silver Challenge but at the start the Supervisor PC must ask the end-user how many loops of the track the two buggies should perform before parking safely.
- Therefore your code must be generalized.
- The buggies will perform the required number of loops in opposite directions and park safely.
- Either buggy must be capable of detecting an obstacle and temporarily halting until the obstacle is removed.
- Both buggies under full supervisory control.
- No external end-user manual control input is permitted once the initial start is signaled.
- Again, control messages and state of the track and buggies must be displayed on screen.

Thanks