

# CPM-IS-E-Z-P-Z

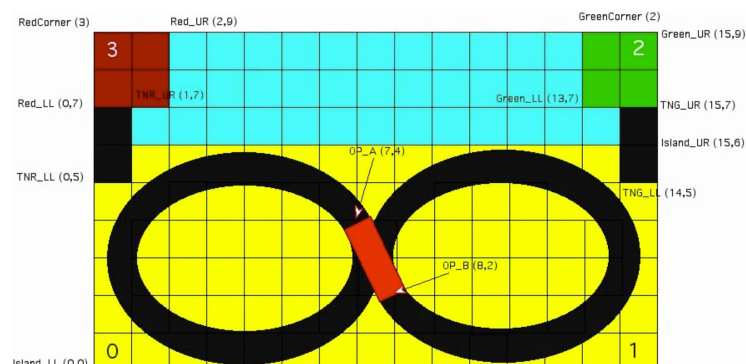
ECSE 211: Design Principles and Methods - Winter 2021

Atef Halwai : Project Manager    Nikhil Jabesh Moses : Documentation Manager  
Sean Smith : Software Lead    Narry Zendeerhoo : Testing Lead  
Marckly Paul : Hardware Lead



Team 03

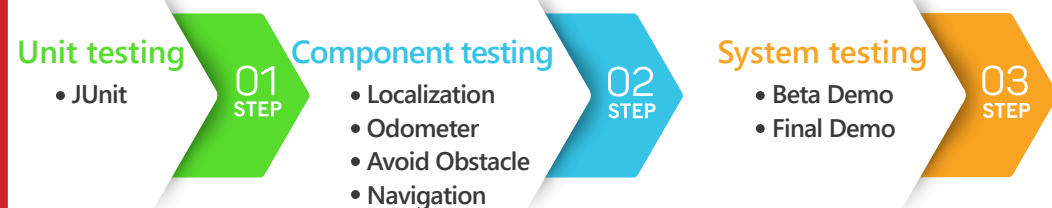
## OBJECTIVE



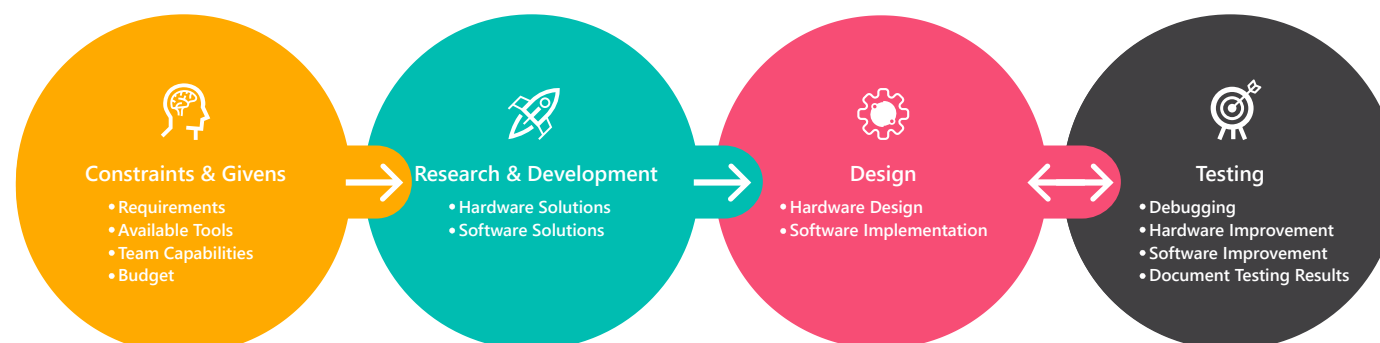
### Tasks:

- Receive WiFi parameters for obstacle course
- Localize at starting corner
- Cross the tunnel to reach the main island
- Get to every waypoint to perform laps
  - ◆ Avoid any obstacles
  - ◆ Avoid competing robots
  - ◆ Go over and under the bridge
  - ◆ Localize to increase navigation accuracy
- Go back to starting point

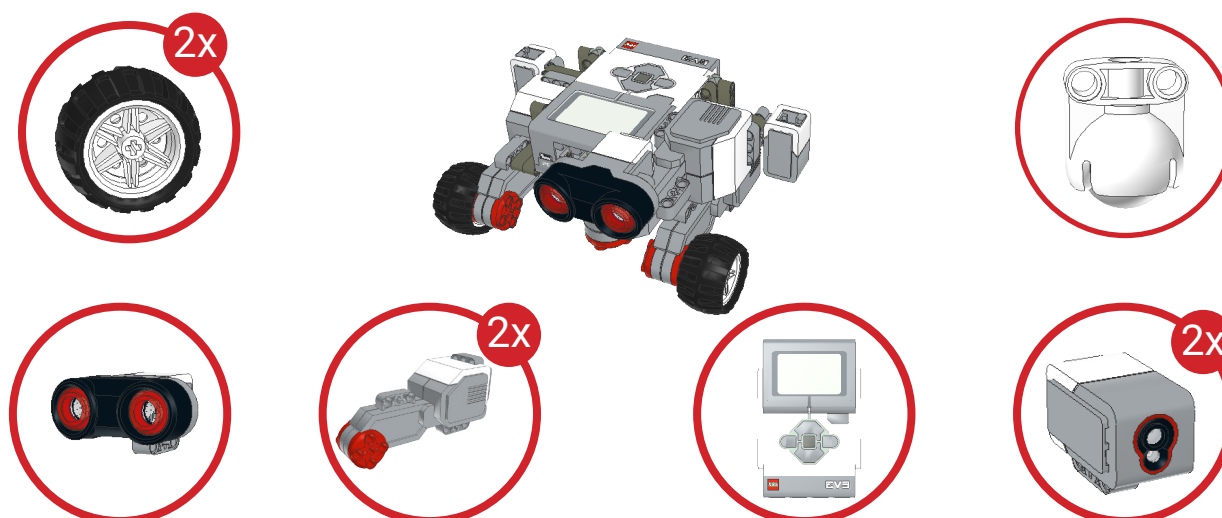
## TESTING PROCESS



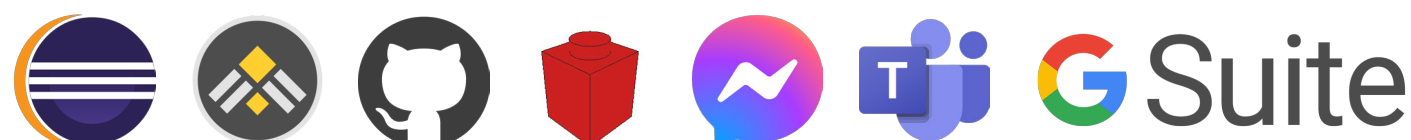
## DESIGN PROCESS



## HARDWARE



## TOOLS

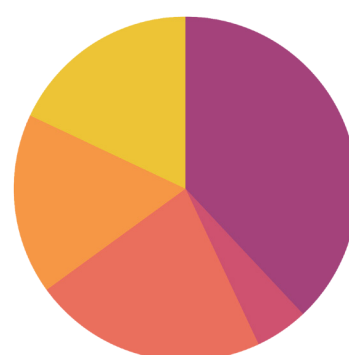


## BUDGET

Estimated Budget: 294 hours

Actual Budget: 318 hours

Name	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total Hours
Sean	17	7	6	10	14	6	6	66
Narry	17	10	10	10	14	4	3	68
Marckly	4	11	4	8	15	9	11	62
Nikhil	10	5	4	8	10	8	13	58
Atef	10	10	6	9	12	9	8	64
Weekly Totals	58	43	30	45	65	36	41	318



- Documentation 38%
- Hardware Design 5%
- Software Design 22%
- Management 17%
- Testing 18%

## SOFTWARE

### Software Architecture :

- Component-based development
- Rich Javadoc API
- Minimal Threading

### Key Features :

- Obstacle Avoidance : Wall Follower handles any shape
- Overpass Handler : Accurate overpass driving
- Tunnel Handler : Drive precisely through tunnels
- Localization : Correct robots' position anywhere
- Self-correcting Path : Use black lines to correct path
- Odometry : Accurately track robots' position
- WiFi Server : Receive playing field parameters

