Ria

ROBOT DESIGN OVERVIEW
TEAM: @RISING STARS
TEAM NO : 66782

Lego League 2025
Theme: Unearthed

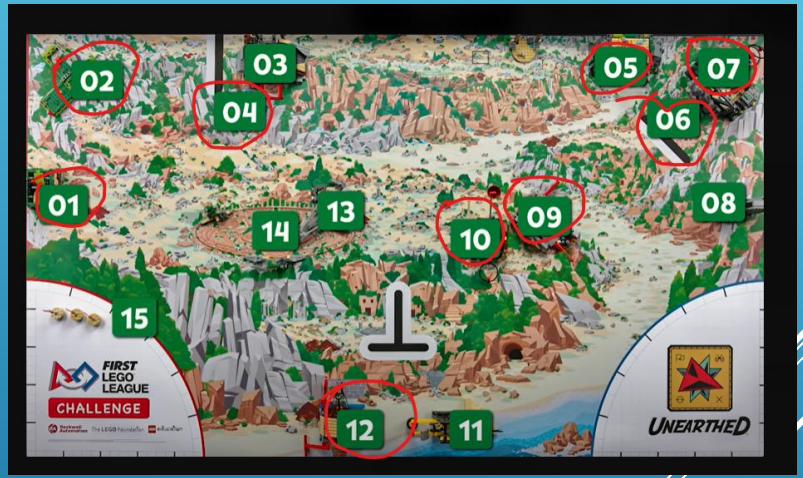
TEAM MEMBERS

Name	Age
Riona Panda	10
Zoey Jain	11
Shaivi Aggarwal	11
Saanvi Loomba	11
Saumya Loomba	11
Girisha Gupta	11
Riya Patil	12

MISSION STRATEGY

- Took mission board print out and marked on those sheets to find missions and path required.
- Tried missions with hand.
- Tried individual missions first and then combined them to optimize runs and time.
- Tried various combinations to maximize score.
- Picked ones that can be completed in 2.5 minutes and gives maximum score.

MISSION STRATEGY



RESOURCES USED

- Spike Prime Lessons
- Online FLL Tutorials
- Online research
- Solon STEM scrimmage
- Talked to other team coaches
- Lego Studio 2.0
- Lego robot design and team guides

SKILL BUILDING

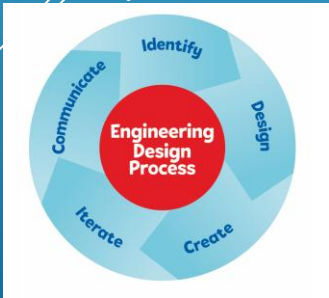
- Did basic programs to move straight, turn, use sensors and motors
- Created Pseudo code with paper and pencils
- Shared and improved
- Used gyro and color sensors to make our mission runs more reliably
- Distributed work in two groups to get things done faster
- Learned coding with Gyro to improve accuracy
- Created reusable code blocks for different missions
- Attended Solon STEM scrimmage and used learnings for improvement

HOW WE WORKED AS A TEAM

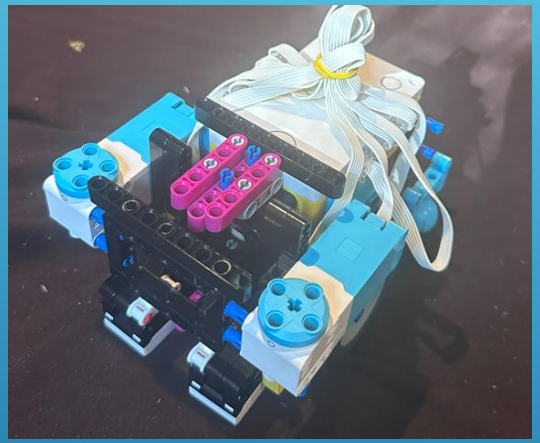
- All 7 girls tried building and coding
- We took turns and alternated between innovation project and robot building/coding
- We rotated drivers, builders, and coders
- Each person helped design at least one attachment or routine

DESIGN- ROBOT DESIGN

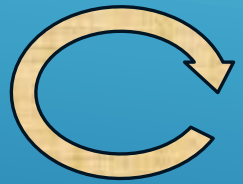
- Reviewed mission board and various missions
- Tried 3 different designs before picking final version.
- Used Engineering Design Process to iterate and improve.
- Combined learnings from last season and 3 earlier designs to design selected design.
- Tried many runs to make small incremental improvements.



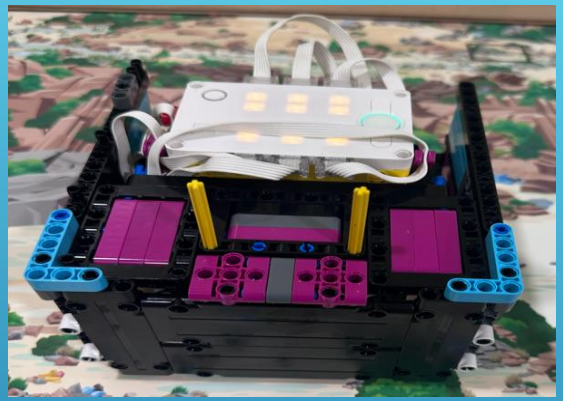
DESIGN - ITERATE AND LEARN

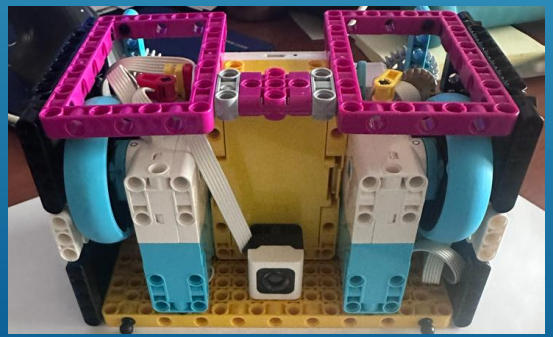


Third



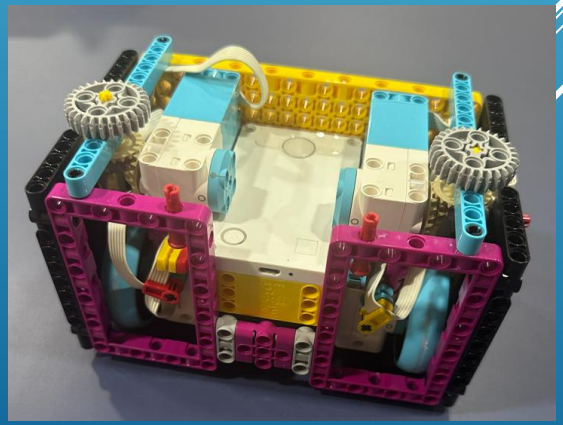
Current





Second

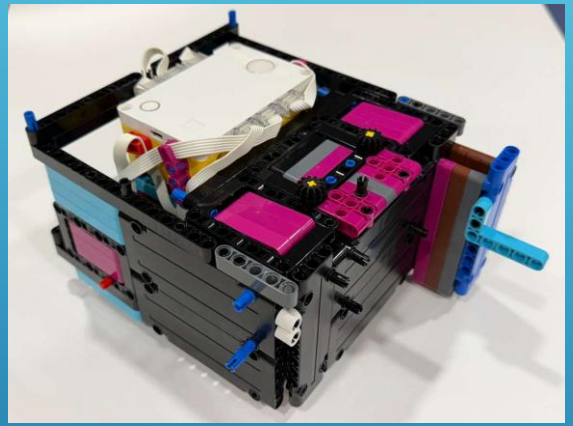
First

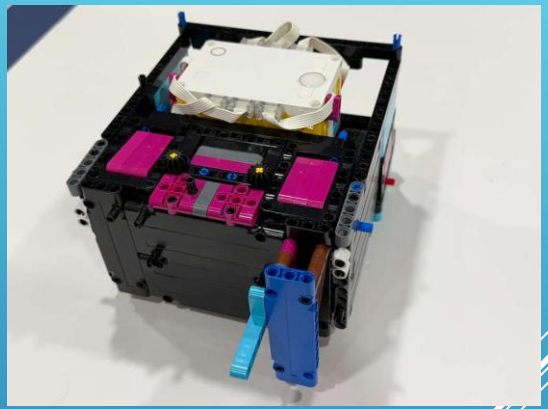


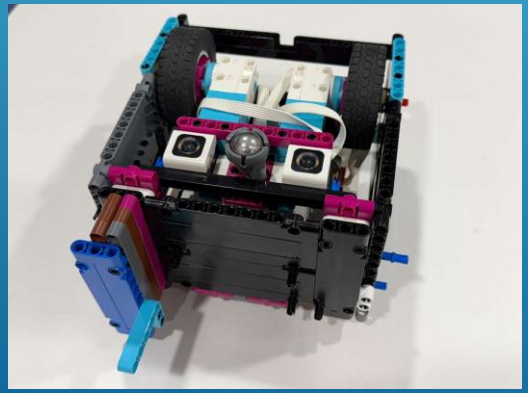
DESIGN- KEY COMPONENTS AND CONSIDERATIONS

- Box design : Flat frames on all sides: lets us swap attachments quickly between runs
- 4 Motors
  - 2 for Wheels
  - 2 for attachments
- More powerful motors for attachments
- 2 rubber wheels to reduce slips and more accuracy
- 1 caster wheels with steel ball
- Charge port accessible
- 2 Color sensors

SELECTED DESIGN OF ROBOT







Zoey

WHAT WE LEARNED FROM ROBOT DESIGN

- Testing and changing small things can make a big difference
- Using sensors makes the robot more reliable than only timers
- Robot weight need to be evenly distributed
- Reset motors after every run for accuracy
- Working together and sharing ideas helped us solve harder missions

CREATE - ATTACHMENTS DEVELOPED

It’s easy to add attachments on left and right side of front of robot.
We also made several simple attachments for missions

CREATE - SAMPLE REUSABLE ROUTINES(MYBLOCKS) DEVELOPED

- Move Straight Accurately
- Move Left
- Move Right
- Move Reverse
- Move Right Arm
- Move Left Arm

SHARE AND ENJOY

- We took turns and shared workload and experience.
- Team had 7 girls and we became good friends and had lot of fun during break time.
- We got better at programming and learned to use Gyro for more accurate movements.
- At times robot did not work as programmed and broke models and seeing it fail was funny.
- We had so much fun during field trip at Nelson Leges Quarry park.
- We discovered new and creative ways to solve missions and really enjoyed it.