

Fantastic 5 Team #618

ROBOT DESIGN

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MECHANICAL DESIGN

Durability

- 2nd year base robot has been used in competition
- Survived the "Drop Test"
- Withstood rough handling by 12 year olds
- Same robot used for development and competition
- Never breaks, not fragile

Mechanical Efficiency

- One attachment handles four missions
- Robot frame eliminates need for big attachments
- Uses a small amount of parts
- No unused sensors or motors on the robot

Mechanization

- Robot changes speed on two missions to manage momentum
- Use of brick degree measurements to improve efficiency
- Utilization of four tooth gear for easy attachment changes
- Compact/balanced attachments for consistent results

PROGRAMMING

Programming Quality / Efficiency

- Version control
- Utilize comments for starting positions
- Use of My Blocks to consolidate robot game into one program
- Use brick screen as prompt to robot technician for next mission

Automation/Navigation

- We wall run
- We wall square
- We square to a model
- Use color sensor to stop
- Use of angle turns to maintain direct routes for consistency

Strategy and Innovation

Design Process

- Utilize a development bench to keep track of physical attachment changes
- Developed observation skills to watch physics which led to lots of discussion
- Relied on photography to track changes

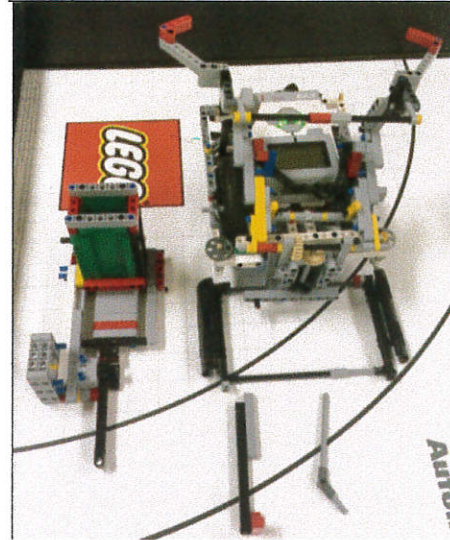
Mission and Strategy

- Developed a prioritization spreadsheet
- Analyzed each mission prior to beginning building
- Strategy grew from mission location
- Consolidating multiple attachments into one to handle several missions
- Analyzed distance to point value ratios to prioritize missions

Innovation

- Our teams first use of brick screen for instructions during run
- Adapted features from multiple attachments into a single attachment
- Mimicked fridge mechanism into our food delivery attachment

THE BOT WITH ATTACHMENTS



THE ATTACHMENTS

