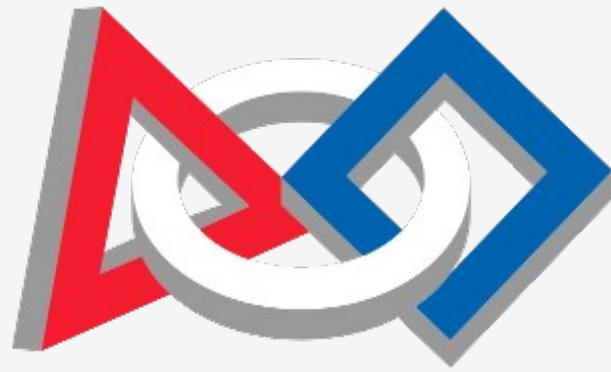


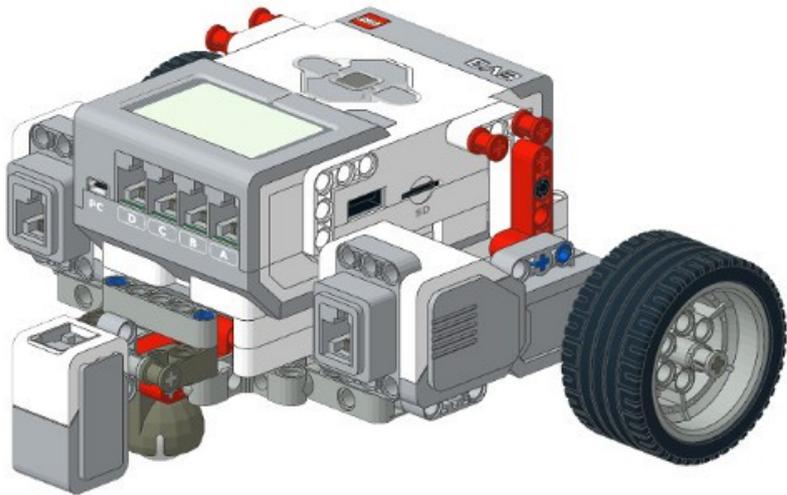
# Plans for Today

- Intro to First Lego League (FLL)
- FLL in Gears
  - FLL World and Challenge
  - Customizing your robot
- Breakout rooms
  - Attempting the mission



**FIRST<sup>®</sup>  
LEGO<sup>®</sup>  
LEAGUE**

**CHALLENGE**



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# What is FIRST?

- Non-profit organization that organizes..
  - FIRST Lego League
  - FIRST Tech Challenge
  - FIRST Robotics Competition
- Been running robotics competition since 1992
- Probably the biggest robotics challenge in the world
  - 679,000 participants in 2019-2020 season

# FIRST Competitions



**FLL Challenge**

<https://youtu.be/FSIXAofECho>

Age: 10 to 16  
Around 200 Teams in  
Singapore



**FTC**

<https://youtu.be/jAxH5NU0IMc>

Age: 12 to 18  
Not available in Singapore



**FRC**

<https://youtu.be/Hm5wUN8BbNg>

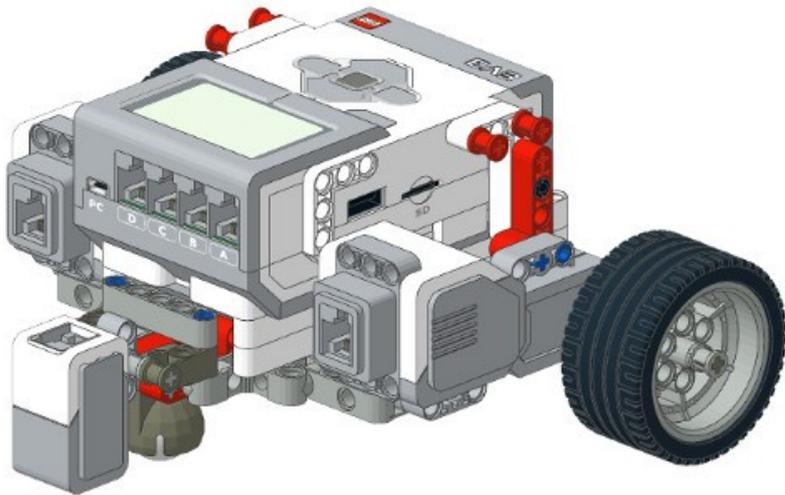
Age: 14 to 18  
Not available in Singapore



**CHALLENGE**



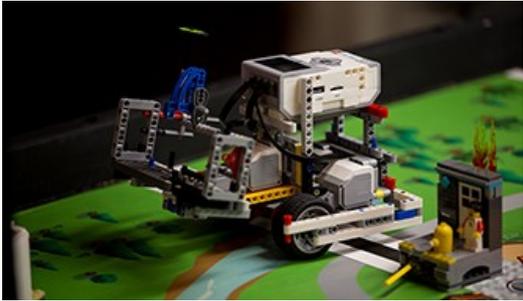
2020 – 2021 Season



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**CHALLENGE**



**Robot Game**



**Innovation Project**

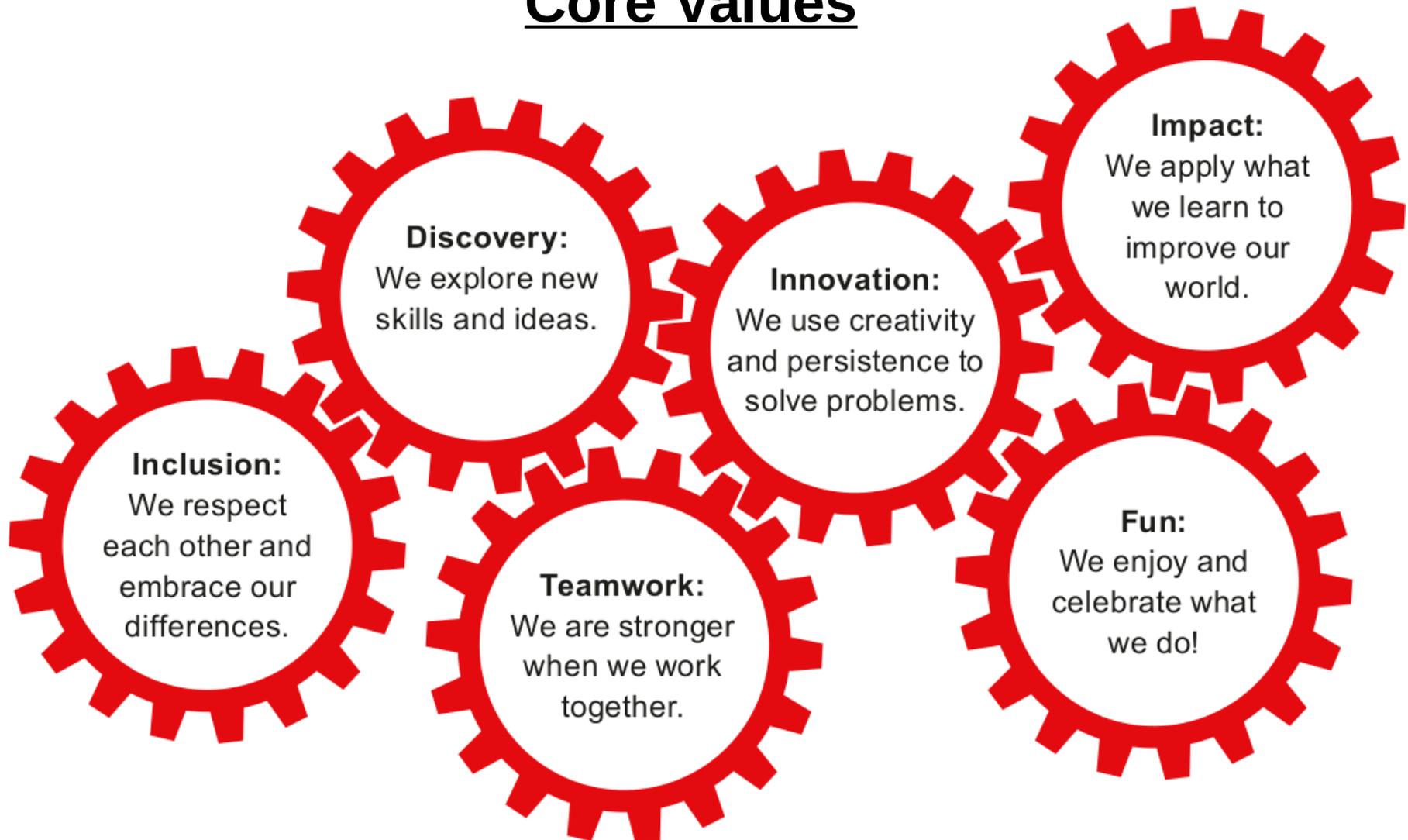


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## Core Values





# Innovation Project

“Identify a real world problem to get people to be more active.”

Many Opportunities to be active...





# Innovation Project

...but more and more people are not active enough





# Innovation Project

## How can we get people to be more active?



Games?



Competition?



Facilities?



Rewards?



Mobile Apps?



Convenience?

# Innovation Project



- Challenge!
  - Identify a specific problem linked to people not being active enough
  - Research problem
- Design
  - Think of a solution
  - Build a prototype
- Share
  - Share on website
  - Share with experts and others
  - Present to judges!  
(5 mins)





# Innovation Project (Example)

## Problem

- Children with learning disabilities or autism tend to have poor motor skills
- As a result, they struggle to participate in sports and tend to be inactive

## Research

- Consulted students, teachers, physiotherapists at special schools
- Evaluated current solutions by physiotherapists

## Developed

- Pinball machine designed to improve motor skills
- Built prototype, tested in special schools with students, consulted specialists
- Improved design



'Fizzball', by Ctrl+Alt+Del



## Impact

- 60 sets for first school, orders for more from second school
- Production and sponsorship plan
- Partnership with local charity

# Robot Game



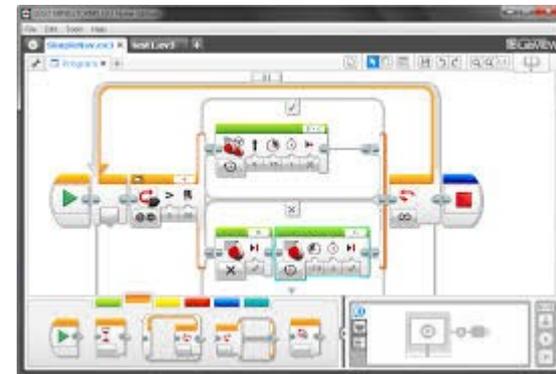
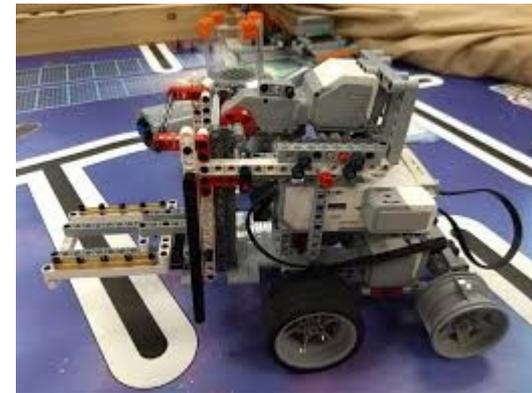
- Challenge!
  - 14 missions
  - 2.5 minutes

- Robot!

- Design
- Build
- Program

- Missions Description

- <https://youtu.be/ntRcZgWvopA>



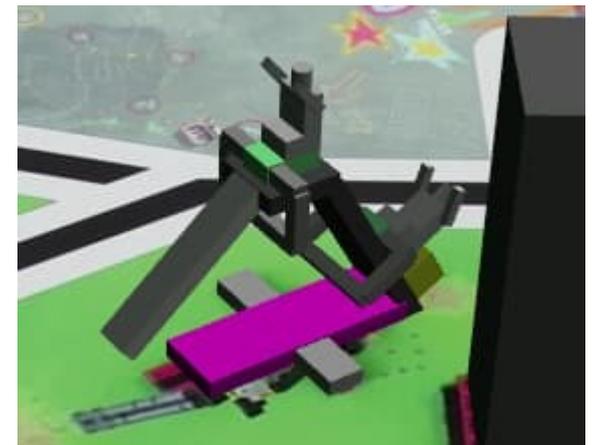
# Simulation in Gears

- Tutorials
  - <http://a9i.sg/gears-tutorial>
- Configurator
  - Demo
- Missions (Breakout rooms)
  - M02 Step Counter
  - M03 Slide
- Example
  - <https://youtu.be/fjrCd3Lgo3k>

**M02 Step Counter**



**M03 Slide**



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