Simple & Powered Machines Category

The Food Expert's Rescue

Game Description, Rules, and Scoring

1.   General Rules
1.1. Team

1. A team consists of two (2) members and/or one (1) coach.
2. Participants are elementary school students, whose date of birth falls on/or after January 1, 2006.

1.2. Material

1. The set used is Simple & Powered Machines base set (9686). Team are allowed to use other LEGO Education set beside 9686, however, the number and type of the components must matches of those available in one 9686 set (see appendix at the last page). The color of the components doesn't matter.
2. Teams should prepare and bring all the equipment they need during the competition.
3. Teams may only use ABC ALKALINE batteries, no other battery brand may be used in the competition.

Eligible Battery for the competition

1.3. Competition

1. All LEGO elements in the box must be separated completely before the start of the competition, including minifigures, wheels and tires. Judges will check the state of parts before announcing the start of the competition.
2. Battery box should be left open without its covers during the competition.
3. Competition is divided in three stages:
    •   Assembly & Testing stage (45 minutes)
    •   Qualification stage
    •   Final stage (top 8 teams)

4. After the Assembly & Testing stage, teams must close their boxes with all the unused LEGO parts inside the box. The box must remain closed for the rest of the competition and teams are not allowed to take any parts from the boxes.

1.4. Game Flow

1. Qualification stage:
   • At each match, two teams will play side-by-side in pairs. The order of teams to play is determined randomly.
   • Final score and time of each team will be recorded.
   • Eight (8) teams with the highest score will proceed to the Final stage. If two or more teams have the same score, ranking is decided by the shortest time recorded.

2. Pre-Final stage:
   • After the qualifiers are announced, the top 8 teams will remain in competition area. The non-qualifiers will need to leave the competition area.
   • The qualifying teams may consult with their coaches and made changes to their robots accordingly. Coaches may NOT touch the robot under any circumstances. Maximum time for consultation and changes are 10 minutes.
   • After 10 minutes have passed, all coaches have to leave the competition area and all of teams' robots will be inspected and quarantined before starting the Final Stage.

3. Final stage:
   • The Final stage is a tournament stage. This means, at the end of each match, score will be taken, and team with the most points will win.
   • At each match, two teams will play against each other side-by-side in pairs. The order of teams to play is determined randomly.
   • Teams' points on those matches will determine the winner. If teams have the same score, ranking will be decided by the shortest time recorded.

In each matches in both qualification and final rounds, teams will have 2 attempts. 1st Attempt will be on Track 1, 2nd attempt will be on track 2. Best score out of the two matches will be taken as the team's score for that round.
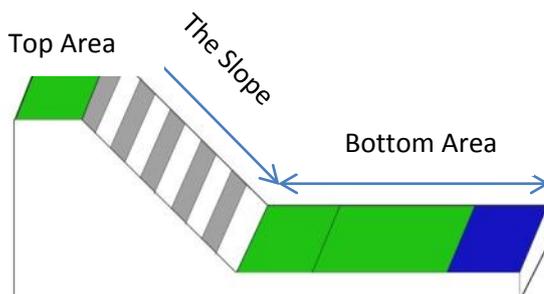
2.   Challenge
2.1. Overview

The challenge for this game is to build a transporter that can climb through slope, pick a passenger at the top base, and return the passenger back to the starting point.
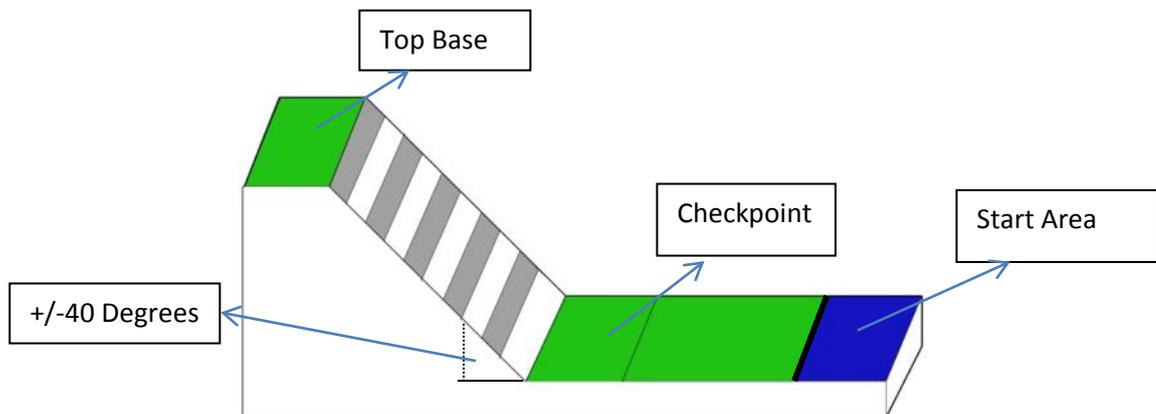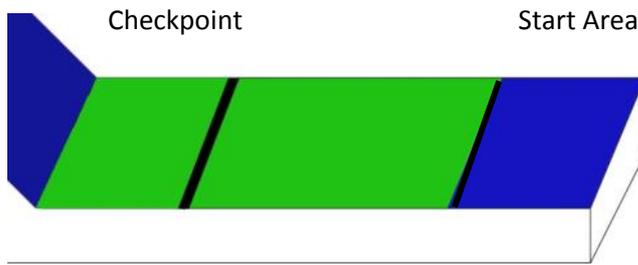

2.2. Game Rules

The Track Overview
The Track is divided into three areas, the bottom area, the slope, and the top area. Some area will be further divided into sub-areas:

Bottom Area:

The Bottom Area is a flat area which is 1000mm in length.


Checkpoint   Start Area

1. Start Area

   All robots will start from this area. All part of the robot touching the ground has to be inside the area completely before the match starts.

2. Checkpoint

   This sub area is positioned just before the Slope Area. After the robot moves from the Start Area to this checkpoint, teams may modify the robot using the parts already on the robot ONLY. Each team should try to modify the robot accordingly to be able to climb the slope.

Slope Area:
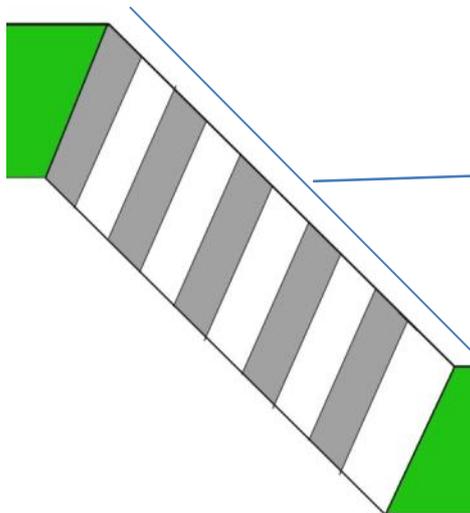
|	
Zona 10	30
Zona 9	27
Zona 8	24
Zona 7	21
Zona 6	18
Zona 5	15
Zona 4	12
Zona 3	9
Zona 2	6
Zona 1	3

The angle of the slope is 40 degrees (may vary within +/- 2 degrees). Teams should take care to ensure the robot can climb up the slope until they reach the next area.

If the robot failed to climb the slope fully, teams can still get the score for reaching specific zones (1-10). Reaching zone 1 gets 3 Points, zone 2 gets 6 points, etc. Note if robot reach zone 10 means team gets 30

points in total, not a cumulative score of passing zone 1-10 which is 165.

Judge will mark the robot's progress on which zone. Zone score will be based on the furthest zone the team has reached. So even though the robot end the round in zone 5, but the robot had reached zone 9 before that, then score for zone 9 will be used as the team's zone score.

Top Area:
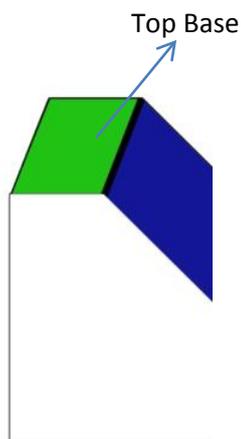
Top Base

This area is also flat but is shorter (1/4) than the Bottom Area.
1. Top Base
    Once the robot successfully climbed the slope and reach the top base, teams will put the minifig provided in the Top Base inside the robot. Robots will then move downward back to the Start Area without dropping the passenger.

- Please remember that there are no walls in this track.
- The minifig has to be inside the robot to count as scoring a point, and teams may never touch the minifg by hand and put them back inside the robot.
- After the robot loads the minifig, and enter the checkpoint, teams may modify their robot with both the parts on the robot and on the checkpoint which they may have left behind.
- The parts teams left behind has to be inside the checkpoint, and visible for the judges to see at all times.

Rules regarding the robot

Maximum dimension of the robot is 25x25 cm. There is no height restriction.

Each robot need to prepare the container for the passenger with the following condition:

- The bottom part above the passenger has to use 2 flat tiles (1x4).
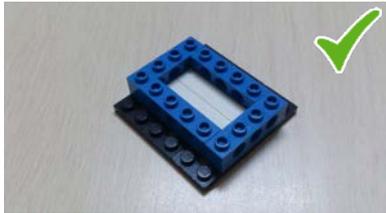
- The brick wall has to consist of two 1x4 Technic Brick in the front and back, two 1x4 Technic brick on the left and right, aside from the two 1x4 Flat Tiles mentioned above. For the base beneath the technic bricks and flat tiles, teams can use any LEGO materials such as plates, round brick, etc:
- The wall surrounding the passenger may not exceed 1 brick in height. (measured from the bottom not from the flat tile)
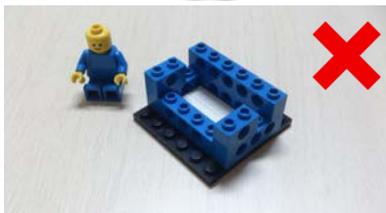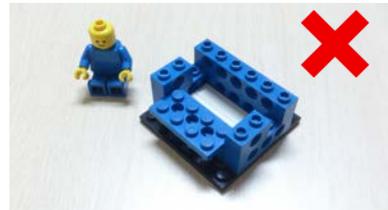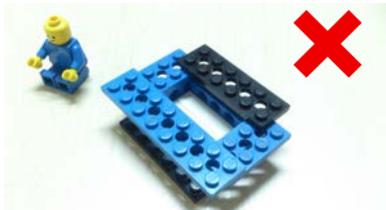

- It is not allowed to cover the passenger in anyway aside from the brick wall.
- The brick wall can only use the specified technic brick in its original condition without any additional connectors, pins, etc that would hold the passenger inside.
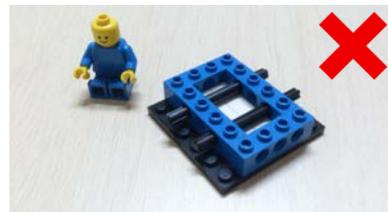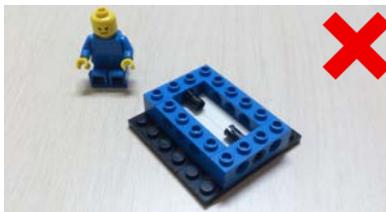
- The brick wall height must be the highest part of the robot. No part of the robot may be higher than the brick wall (other parts are allowed to be on the same height but not higher). The judges will constantly check the height when teams are making changes in the top base, checkpoint and before quarantine. Teams may not continue if they fail to meet this condition on each checkpoint, Top Base or Start Area.

- Minifig has to be positioned sitting down completely, not slanting forward or leaning backward.
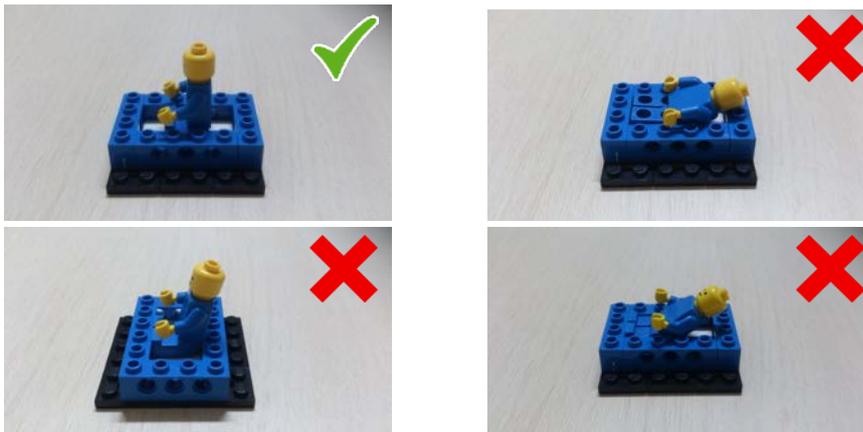

- Both minifig's arm has to be completely straight forward, not positioned backward downward or mixed that would potentially help hold the minifig in place.
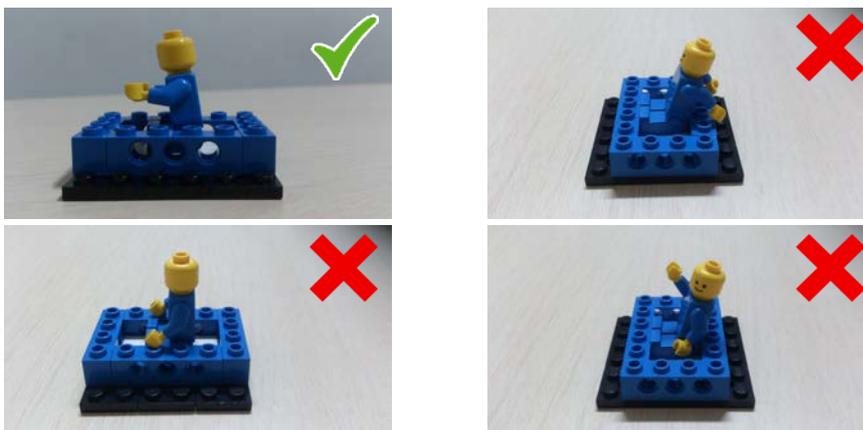
- It is not allowed to use any methods not mentioned by the restriction above which cause the minifig to stay in place. Judges will check the robot during any changes and before quarantine to ensure the minifig can move freely.

Modification during match

- Teams may change the robot's arrangement on the specified checkpoint or Top Base, but may only use parts already on the robot or inside the checkpoint the robot is in.
- Robots may not be adjusted once they are outside of the checkpoint, Start Area, or Top Base.
- The robot is considered to have reached an area or checkpoint if all part of the robot touching the ground is inside an area.
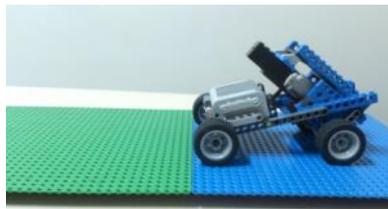
In Start Area

Not in Checkpoint yet
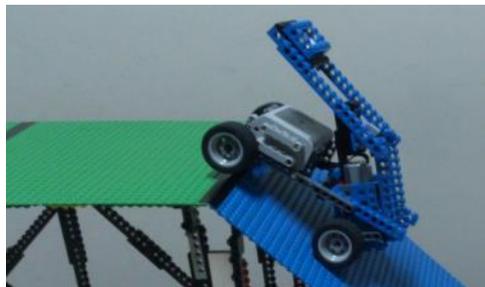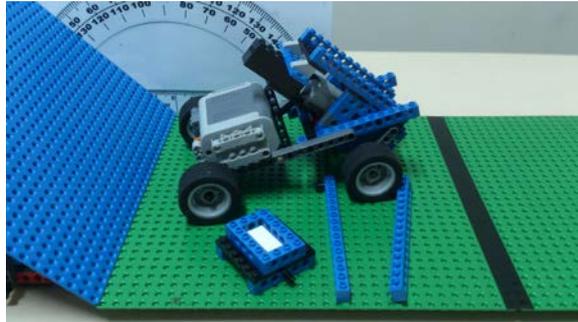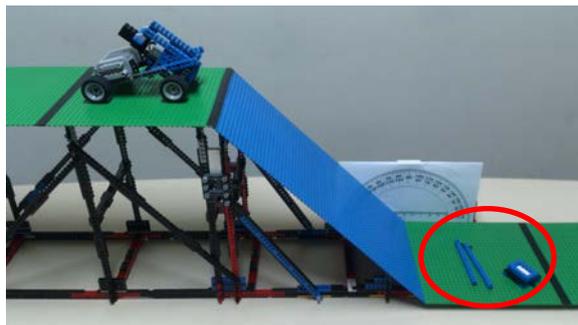

Not In checkpoint yet

Not in checkpoint yet

- The black line is not considered part of the checkpoint or Top Base.

Touch Penalty, Stray Object

- Teams may leave objects behind on checkpoints.

- However, teams may only use parts on the checkpoint they are in to modify the robots. Parts on other checkpoint or Top Base or any other location aside from the checkpoint or Top Base that the robot is in, may not be used.

The circled parts cannot be used to modify the robot in checkpoint 2

- If for some reason, the robot does not perform accordingly, teams may touch the robot but MUST bring it back to the Start Area, Top Base, or last checkpoint they are in. Where they may modify it or simply rerun it. Time is never paused during rerun or modification. (penalty point is applied)

Time of a match will stop if:

- Challenge time (2 minutes) has ended.
- The robot has return to the Start Area completely.
- A team member shouts "STOP" to end the run.

2.3.   Gameplay

1. Before the match starts:
    *   The robot must start from completely inside the Start Area (completely inside the Start Area).
    *   After both teams ready in position, a judge will give signal to start the match.

2. When the match is on:
    *   Two teams will play in pairs within the same time limit (2 minutes).
    *   If a team did not finish when the time ends, that team will still get points from the mission they completed but will have 2 minutes as their mission time (0 remaining time).
    *   If teams have the same score, ranking is decided by the shortest time recorded.

3.   Scoring

The scoring allocation is as follows:

| Condition	Score
Reach Checkpoint	10 Points
Reach zone 10 on the Slope Area	30 Points
Reach Top Base	10 Points
Passenger reach Checkpoint	40 Points
Passenger return to Start Area	20 Points
Touch Penalty	-10 Points
Max Score	**110 Points**

Scoring Example:

The robot went up the slope, to the top base, load the minifig pass checkpoint, but dropped minifig while rushing back to the start area. During the process the robot got stuck climbing the slope and team touch the robot and rerun from checkpoint.

| Condition	Score	Total
Reach checkpoint	10 points	10 points
Reach Zone 10 in Slope Area	30 Points	30 Points
Reach Top Base	10 points	10 points
Passenger reach checkpoint	40 points	40 points
Passenger didn't return to Start Area	0 points	0 points
Touch penalty 1x	-10 points x 1	-10
Final Score		**70 points**

4. Specification
4.1. Playing Field
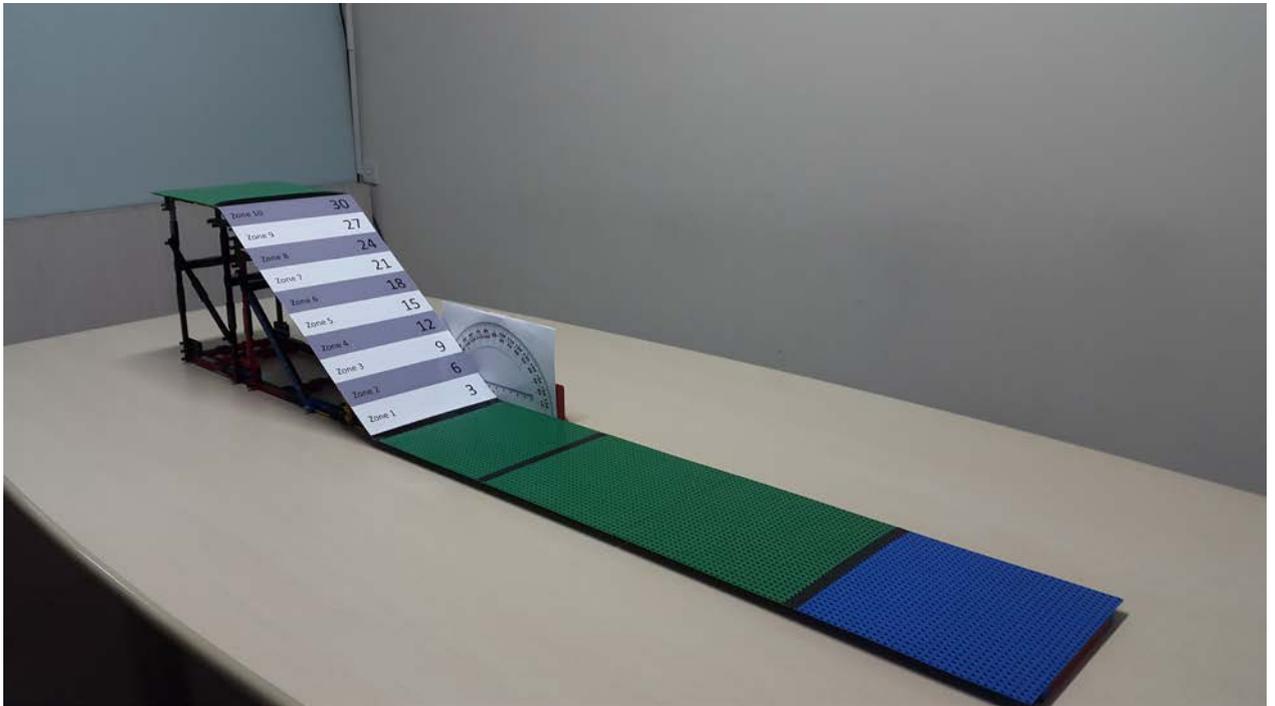
Playing field

The track is made of 7 LEGO base plates, 1 base plate for the Top Area, 2 base plates for the slope, and 4 base plates for the bottom area.
(The physical track might be different but the dimension will be the same)
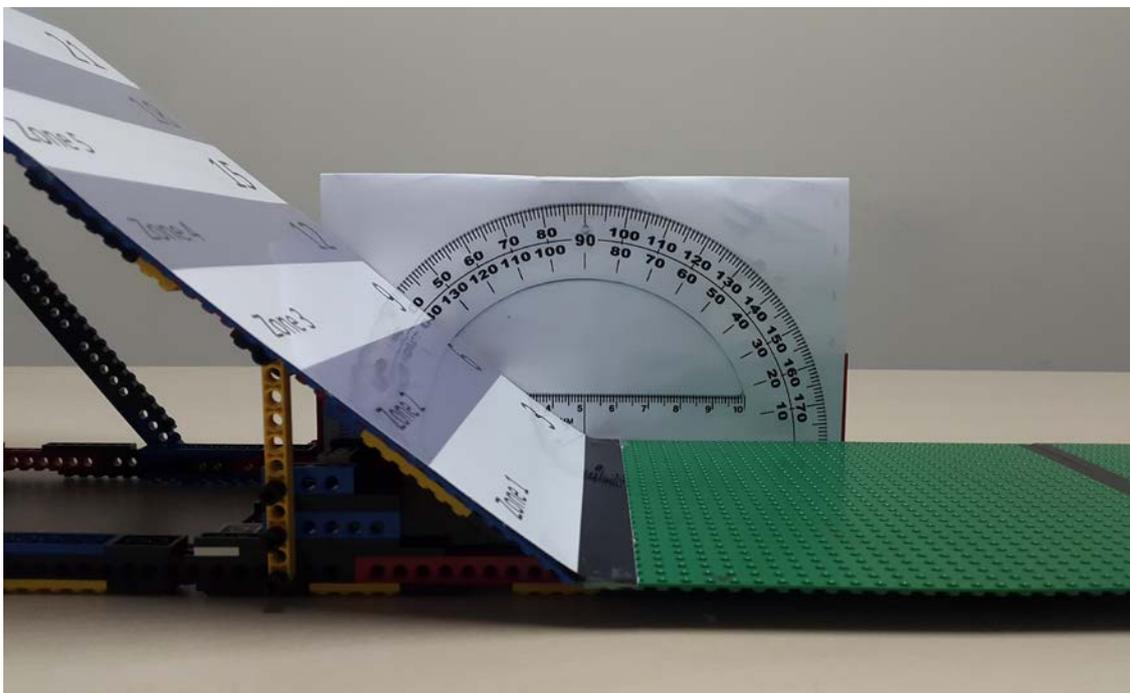
- The slope angle from the bottom area is 40 degrees
- The slope is covered with a sticker covering the whole area.
- The sticker's coating is glossy
- Excess of 2cm on both ends are black in color going to the checkpoint on the bottom and Top Base on the top.
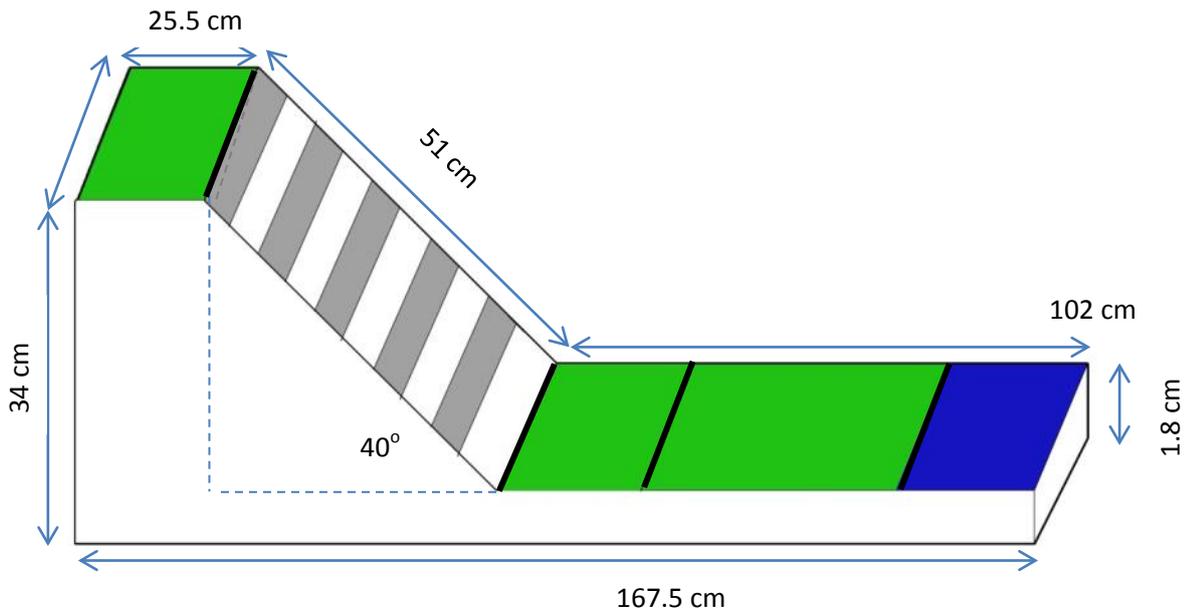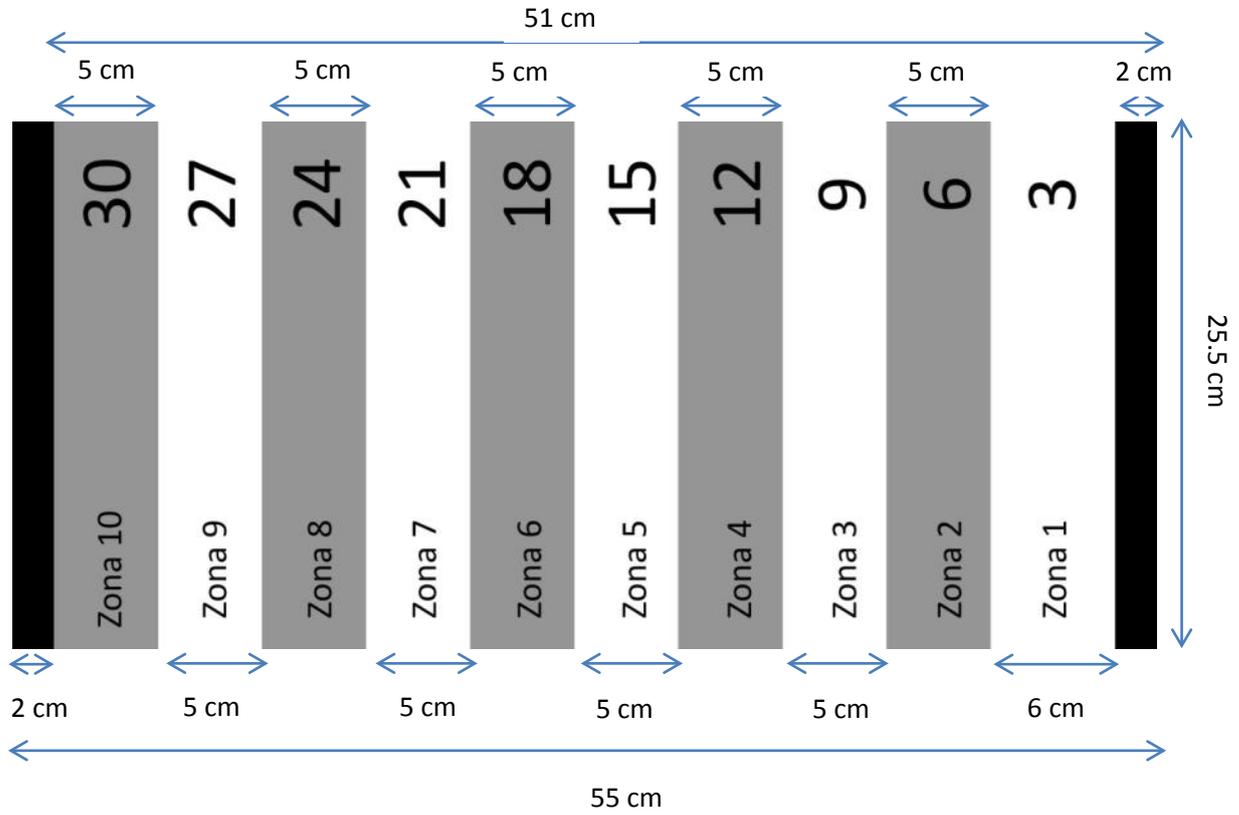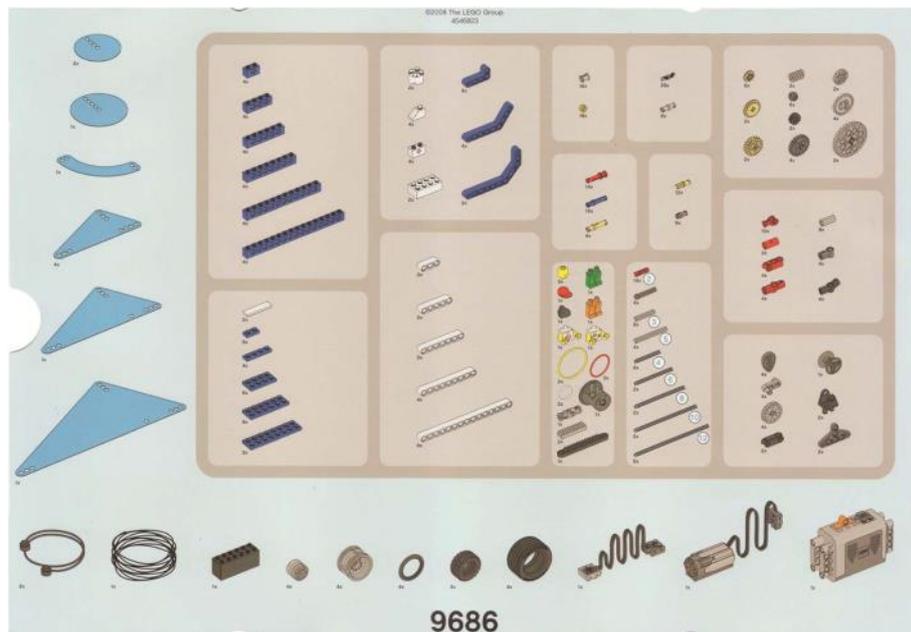

- The black line is 2 cm in width and positioned in the middle of LEGO Base Plates
- The black lines next to the slope on both ends are positioned fully

inside the top base on top and inside checkpoint on the bottom.
- Error of measurement tolerance is +/- 1cm and 2°

4.2. Appendix

Below is the content list of the 9868 set:

9686

4.3. FAQ

Q: When do I get negative points?
A: You get negative points or Touch Penalty each you touch your robot when it is outside Start Area, checkpoint, or Top Base.

Q: How many times can I have touch penalty?
A: 11, since after 11 penalties you will have 0 points.

Q: If the passenger fall down, and I touch the robot, does that mean I can retry again with the passenger inside the robot?
A: Yes, but u will get -10 points, the time is still running, and you have to restart from the previous checkpoints or Top Base.

Q: If my robot went outside of the track completely during its run, may I take it by hand and restart it from last checkpoint?

A: Yes, the same rules apply, time is not stopped, restart from last checkpoint, Start Area, or Top Base, and penalty points given.

Q: A robot is considered to be in an area based on what?

A: A robot is considered to be in checkpoint, Top Base, or Start area if all parts of the robot that is touching the ground is inside that area. While for zone in slope area, both of the robot's front wheels will be used to determine in what zone the robot is in.

Q: Can the materials for the minifig walls be changed due to insufficient parts?

A: Minifig walls have to consist of 2 Technic brick or brick 1x4 in the front and back and 2 Technic brick or brick 1x4 in the left and right. Other materials or sizes are not allowed.

Q: Can the minifig be facing to left or right?

A: Minifig has to face the front not sideways, what is meant by facing front is minifig facing the Bottom Area.

Q: Where exactly will the minifig be placed in the Top Base?

A: Minifig will be placed either on the top or bottom corner of the Top Base, team may decide in which corner it will be placed before starting the robot.

Q: If during the run the minifig fall down and the team took the robot to restart, can the minifig be placed inside the robot again?

A: If the minifig fall out of the robot or the 1x4 wall, minifig is said to fall down from robot and will be taken by the judges. As long as the minifig stays inside th 1x4 wall even though the position is no longer sitting straight, minifig is said to be still inside the robot.

Q: To smoothen the discussion before final, can coach or guardian bring another robot as example during discussion?

A: Discussion can be done without any other robot aside the robot that the participant is using during the match.