2020 STEAM CUP

ROBOT&CODING				v. 2020.1
Participant (age)	Team Formation	Game Method	Robot Condition	Robot Type
Under 12	1 person/team	Event Record	Assemble during the event	Autonomous type
Under 15	1 person/team	Event Record	Assemble during the event	Autonomous type

1. Category Summary

Participant must acquired H/W and S/W algorithm of robot to solve and complete competition missions.

2. Robot standard

A. Robot specification

i. Voltage power must be less than 3.7 V (Battery).

ii. Only allow **one CM-150 controller** (ROBOTIS Dream II Controller)

iii. Participant must bring their own parts including 2(Two) IR sensors,
1(One) LED module, 1(One) Touch sensor.

iv. Competition will use 2(Two) different sensors randomly from above section (iii).

B. Robot Component

i. Robot will be assemble during the event start (No more than two components should be assembled(combined) before the event start).

ii. Total event will be commence 90 minutes including assembly and coding time.

iii.   No limits on robot's size and weight.

iv.   No restriction on walking structure.
(Walking method could be either leg type or wheel type)

v. Do not change or modify the battery (LB-041) voltage.

vi.   If contestant violate above rules, it will result in disqualification.

C. Program

i. No restriction of coding program for Robot & Coding event (Scratch, Task 2.0, Entry is freely allowed).

ii. All Coding must be begins with blank state and it will be automatically disqualify when contestant violate and get caught to STEAM CUP committee.

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3. Arena Regulation

A. Arena structure

    i. Competition will be divided into two different divisions (Primary & Middle School) and they will play in different map. (Please refer to images below)

Primary School division

Middle School division
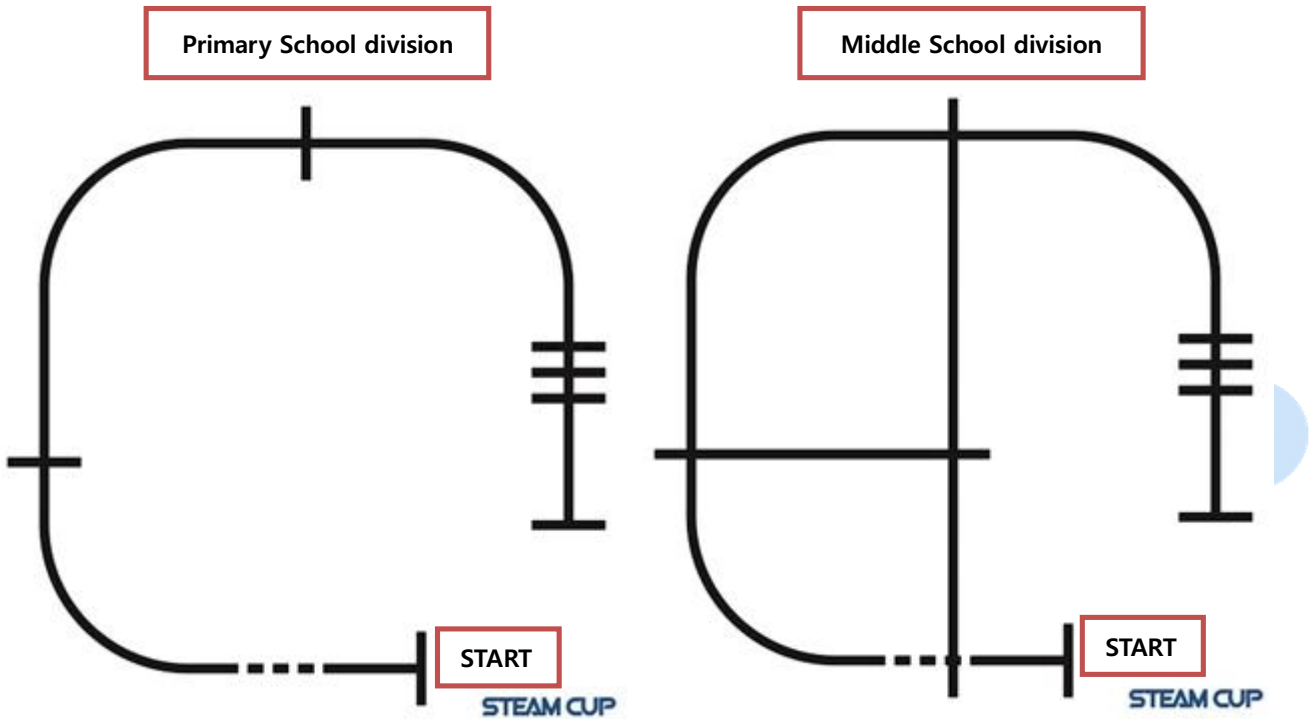
B. Starting position

    i. Please refer above images for robot's starting position.

    ii. Along with judge's start signal, the contestant must press robot's start button. Contestant may re-touch their robot if there is no movement on robot after the start signal. (eg. participant made mistake or press start button incorrectly.) However record time will continue. (But, if the robot shows any movement after start signal, contestant can not touch their robot until the mission time is over.)

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4. General Rules

A. Competition

ⅰ. The performance is determined by the mission performance score. If the performance status is the same, the winner is determined by the performance time score.

ⅱ. The match will be played in three rounds (1st, 2nd, 3rd) and each game lasts 2 minutes.

ⅲ. The game will be conducted on a record-keeping basis, and each rounds will have a different mission.

ⅳ. Participants may not modify and code the robots during the match.

ⅴ. At the end of each rounds, new missions will be distributed. 20 minutes will be given to teams to modify programs prior to the start of the match.

ⅵ. Each section should be recognized by every single line.

B. Evaluation

ⅰ. The priority of evaluation is the mission score. If the mission score is lower even if the completion time is short, the participant who has the highest mission performance score wins.

ⅱ. Even if the robot stops in the middle, the match will continue until the end of the race.

ⅲ. The number of missions is open on the competition day.

1. In the table below, 'A' and 'B' have the same mission score, but 'B' wins because of the mission time.

Contestant	Mission time	Mission Score	Final Score	Result
A	1min. 20 sec	5 point	Time: 1 min 20 sec / Score : 5 point	Lose
B	1min. 10 sec	5 point	Time: 1 min 10 sec / Score : 5 point	Win

2. In this case, although 'C's mission time is shorter, 'D' wins as the mission score is higher.

Contestant	Mission time	Mission Score	Final Score	Result
C	1min. 15 sec	6 point	Time: 1 min 15 sec / Score : 6 point	Lose
D	1min. 50 sec	7 point	Time: 1 min 50 sec / Score : 7 point	Win

C. **Others**

i. There will be no practice time before the match start.

ii. Any damages of robot will not be responsible for organizer. Only 2 minutes will be given to modify your robot.

iii. This competition is strictly prohibited from their parents, teachers or any other relevant to give any advice to the contestant. If the rules are violated, the participant will be disqualified and cannot join the competition.

iv. Anything not included in this regulation will be played according to the decision of the steering committee.

v. Other than the contestants (including teachers, instructors, parents, etc) may not object to the progress and judgment of the match. If the contest is interrupted, the contestant will be disqualified and the coach will be sent off.

vi. You may not participate in other events at the same time except for creative (submission) events.