



STEM Invention & Innovation Competition 2017

Smart Furniture

A smart furniture is a furniture with an innovative design that can transform to serve multiple purpose. It can be moved around easily and does not take up much space.

FLL STEM Invention & Innovation Competition 2017

1.0 INTRODUCTION

STEM invention & innovation competition is a programme that is organized Sasbadi Holdings Berhad.

2.0 OBJECTIVE

- 2.1 To improve students' practical skills and encourage creativity and innovation among students.
- 2.2 To provide a platform for students to contribute ideas and innovations to demonstrate their ability to create and discover something new.
- 2.3 To uncover the students' talent in research and development, invention and innovation.
- 2.4 To promote interest in Science, Technology, Engineering and Mathematics (STEM) Education among school children.
- 2.5 To develop and enhance students' intellectual capacity with respect to rational, critical and creative thinking.

3.0 Theme

- 3.1 The theme is Smart Furniture.
- 3.2 A smart furniture is an innovative furniture that is capable of functioning in different ways without consuming a lot of space and is easy to move around for reallocation.
- 3.3 Your task is to invent a furniture that is portable and can transform to serve multiple purposes while also saving space.

4.0 Conditions of Participation

- 4.1 This competition is open to students from age 9 to 14 in year 2017.
- 4.2 A team should comprise 2 or 3 students and 1 teacher.

5.0 Competition Rules & Regulations

- 5.1 Project must be in accordance with the theme of the competition.
- 5.2 The idea of the project must be original and not plagiarised.
- 5.3 Materials used for the project must be only from LEGO® 9686 Simple & Powered Machine Set, LEGO® 9688 Renewable Energy and LEGO® 9641 Pneumatics and others non-electric/non-electronic LEGO® element. The colour may differ from the original.

5.4 For motors, each one must **exactly match** a type shown below in Figure 1.1.



Figure 1.1

5.5 Other allowable LEGO® electric / electronic components are shown in Figure 1.2.

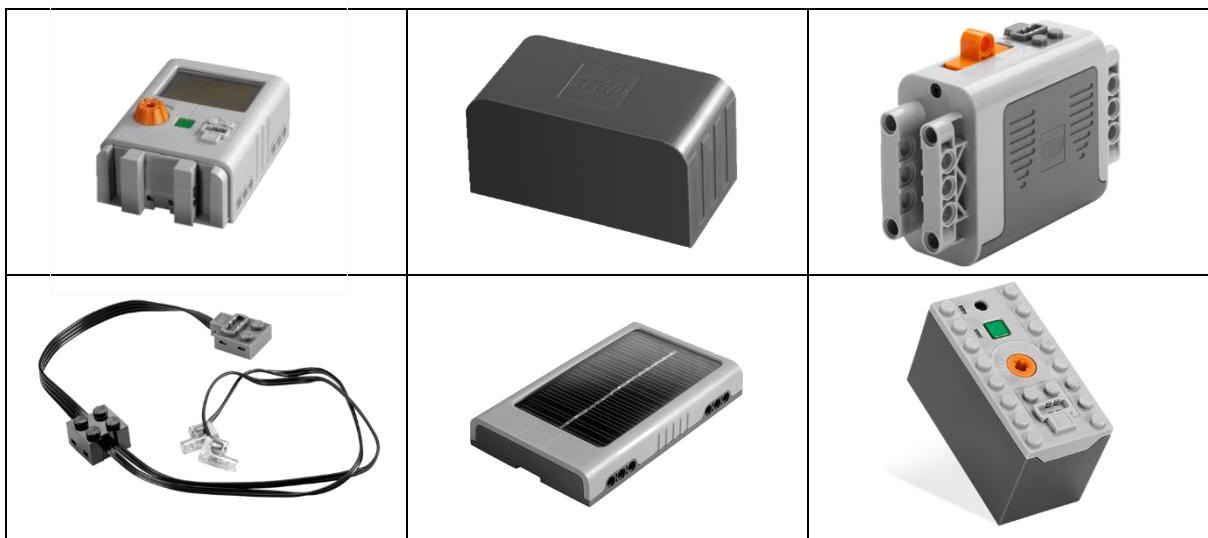


Figure 1.2

5.6 Allowable LEGO® extension wires are as in Figure 1.3.

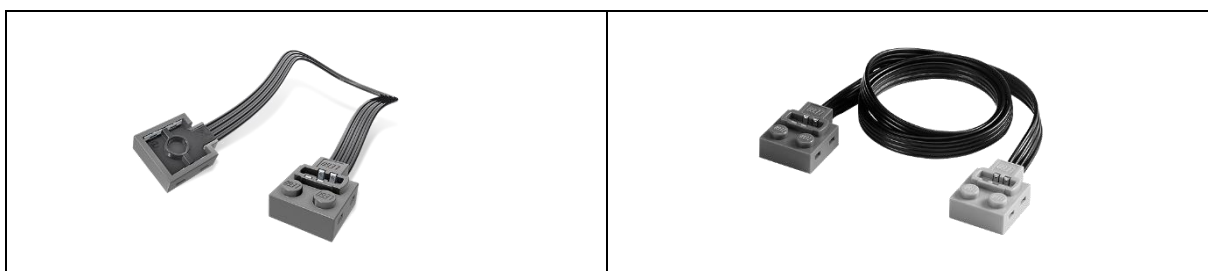


Figure 1.3

- 5.7 Supporting tools for presentation are allowed with any other materials. For example, if you are inventing a watering can, you may use other materials for the flowers and flower pot but the watering can itself must be from the sets mentioned above.
- 5.8 Adaptation of existing products is acceptable if the improvement is totally new.
- 5.9 **The idea of the project must be original and has never been commercialised, displayed or forwarded to manufacturing sector.**

- 5.10 Team must submit a proposal and video (**maximum 2 minutes**) demonstrating the project through fll.sasbadi.com
- 5.11 The video must show the overall view of the project from four different angles (**FRONT, TOP, LEFT and RIGHT**) refer Figure 1.4, and must demonstrate all the functions.

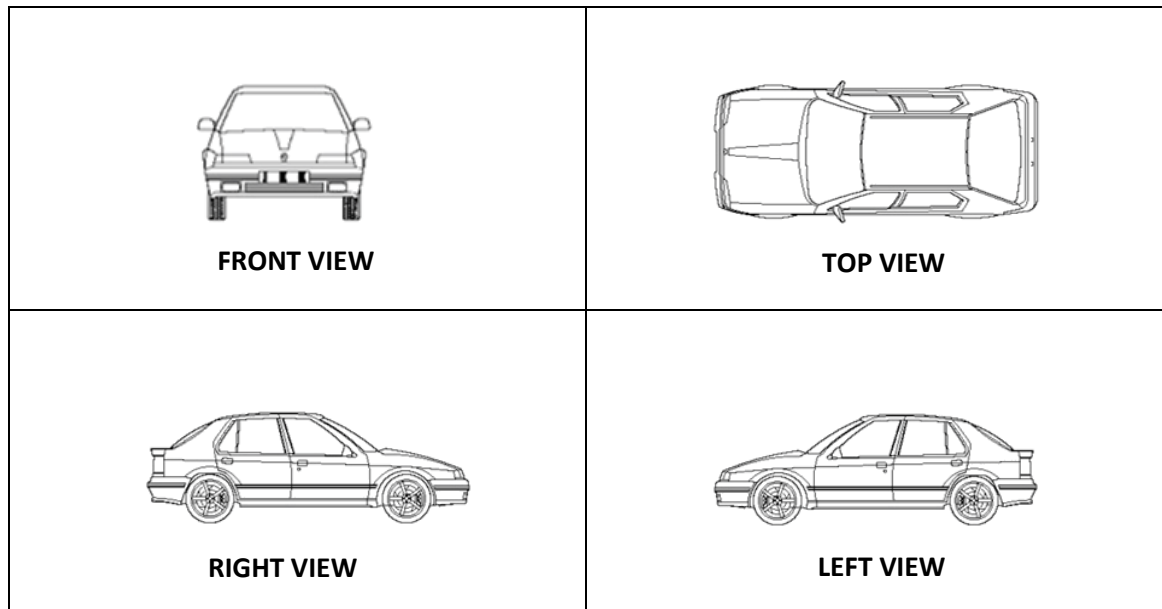


Figure 1.4

6.0 Judging Process.

6.1 First stage: Filter by Organiser

All proposals and videos will be verified/ inspected by the organiser to ensure that the registration meets the conditions of participation and the procedures of registration.

6.2 Second stage: Judging based on proposal and video.

- I. All proposals and videos received will be evaluated by the panel of judges. The panel will evaluate and select projects that meet the evaluation elements to compete in the finals.
- II. Assessment will be made based on the following criteria:
 - a. Level of originality, creativity and innovation.
 - b. Level of usability.
 - c. Level of engineering concept.
 - d. Usage of renewable energy.
 - e. Structural stability.
 - f. Usage of pneumatic.
 - g. Aesthetic appeal.
- III. Successful entries to the finals will be announced in fll.sasbadi.com.

6.3 Final stage: Evaluation based on presentation and demonstration

- I. All finalists will make an exhibition and demonstration of their project on the competition day.
- II. There will be a judging session. Projects will be evaluated by the panel of judges based on presentation and demonstration of the projects.
- III. During presentation and demonstration of project:
 - a. Participants will be provided with a table and chairs to exhibit and demonstrate their project.
 - b. Participants are given 5 minutes to present and demonstrate their projects to the judges.
- IV. Evaluation will be made based on the following criteria: (Refer **Table 1** below)

7.0 Prizes

Winners will receive:

1.	Champion	Trophy, medals & certificates
2.	1 st Runner-up	Trophy, medals & certificates
3.	2 nd Runner-up	Trophy, medals & certificates
4.	4 th – 10 th	Certificates of excellence

8.0 Application Procedures

Registration must comply with the following procedures:

- I. All registration must be made through **fll.sasbadi.com**
- II. All items contained in the online registration form must be filled in.
- III. All items contained in online proposal form must be filled in.
- IV. Videos must be uploaded to **Youtube (unlisted)**. Paste the URL in the space provided in the online proposal form.
- V. You are required to register a **Gmail** account in order to access the online form.
- VI. The organiser reserves the right to reject any entries that are incomplete or late.

9.0 Judging Criteria

Judging Criteria		
Category	Descriptions	Possible Score
Originality	The invention being new in character, design or application.	0-5
Project	Creativity & Quality of Solution - The project is unique and shows creative thinking. The project is well-thought out and has a realistic solution / design / concept.	0-5
	Functionality - The capacity of invention of serving the proposed purpose well.	0-10
	Usability - The invention indicates that it is convenient to use, practical and user-friendly.	0-5
Engineering Design	Engineering Concepts - The project shows evidence that sound engineering concepts were used in the project.	0-10
	Structural Stability - The project is sturdy and can be operated repeatedly without needing repairs.	0-5
	Aesthetic - The project is appealing to the eyes. It appears that the team went out of their way to make the project look as professional as possible.	0-5
Presentation	Successful Presentation - The project worked as expected and could continue to do so with a certain degree of repeatability.	0-5
	Communication and Reasoning Skills - The students were able to explain what their project was about, how it works and WHY they decided to build it.	0-5
Environmentally friendly	Usage of renewable energy.	0-5
Commercial Potential	The prospect of sales and profit is on a large enough scale to make the risk generated from the invention worth undertaking.	0-5
Total Score: 65		

Table 1