

Group number: DEC1707

Project title: Electromagnetic Train

Client &/Advisor: Professor Song Jimming

Team Members/Role:

1. Yap Yong Sheng (Team Leader)
 2. Norfarahin Nordin (Communication Leader)
 3. Chung Sheng Su (Webmaster)
 4. Shi Xiang Lim, Larry (Concept Key Holder 1)
 5. Mustafa Hafez (Concept Key Holder 2)
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o **Weekly Summary**

As last week we have demo the small model of the track, in this week we made a longer track as it is easier for us to test out some other parameters.

Past week accomplishments

Yong Shen

This week, I am doing research on ohm's law. The equation that I found it useful is Hopkinson's Law. The equation is $F=R_m*\phi$. This equation explained that the F (magnetic force) is being produced from R_m (reluctance) produced with ϕ (magnetic flux). From this equation, we can calculate the EMF, ϵ of the circuit from using the current and the resistance of the circuit. I think this equation is useful for our research because we can explain the flux is produced from the battery and magnets while passing through the coil. The coil represented the track for the train to pass through and the battery and magnets represented the train.

This diagram gave a simple explanation for our project.

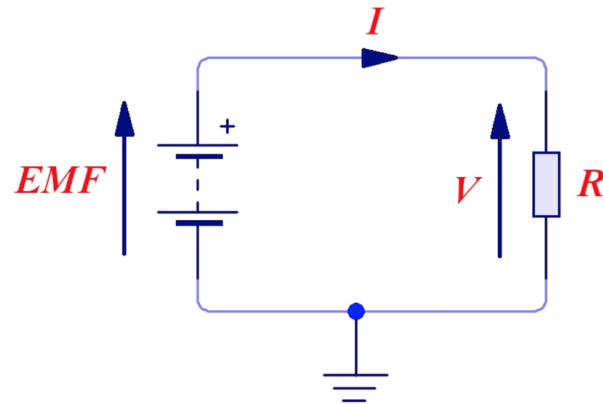


Diagram 1

We can calculate the EMF from the diagram 1 and we can use this diagram to explain with our project.

Link:

Hopkinson's Law : https://en.wikipedia.org/wiki/Magnetic_circuit#Magnetic_flux

Diagram 1 : <http://www.electronics-micros.com/electrical/ohms-law/>

Larry Lim

-Making the physical model of the project.

-Did testing on different variables

Chung Sheng Su

In this week, Farah, Larry, and I are in making a longer track for the experiment. We used a ½ inch PVC pipe as the support when we coil the track. We tested the track with batteries with magnets attached to both ends and it works. But unfortunately, the track is still very fragile where it got deformed without the PVC pipe support. Thus, we reinsert the tract back to the pipe and reshape it. In the next meeting, we will probably have a base for the track to prevent it from going out of shape.

Besides that, I have also added all the weekly reports to the website. As for the biography, I still could not manage to update it as I did not receives the required data from my group members.

blackboard. However, I did not complete to update everyone's profile and the weekly's report as I still need to ask from my group members this week. If everything goes well, I should be able to complete the website by next week.

Norfarahin Nordin

In this week, Larry, Chung Sheng, and made a larger track of the copper coil. The mini model of the track is working well from the last demonstration. Thus, we decided to make a longer track to test out our other parameter such as the angle elevated on some parts of the track and the crossing track.

- **Pending issues**

More battery is needed as every time the battery has passed through one cycle of the full model, the electrical will be totally used up.

- **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Yong Shen	Find the explanation of the electrical contact of the track	2	25
Farah Nordin	Build a larger track for the train.	4	28
Larry Lim	Build a larger track for the train.	4	28
Chung Sheng	Build a larger track for the train.	4	25
Mustafa Hafez	Worked on the theoretical principle of the project.	2	22

- **Comments and extended discussion**

A more sturdy base needed for future demonstration of the larger scale.

- **Plan for coming week (please describe as what, who, when)**

Do the demonstration for the longer track during meeting with advisor.

- **Summary of weekly advisor meeting**

Showed the advisor group progress and the small and larger model.