

MAGNETO STICK (ELECTRONIC SWEEPER)

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ABSTRACT

MAGNETO STICK is aimed at reducing injury cases involving iron-rusted iron being sprayed during construction. With this tool, workers are easy to collect the rusty iron buried in the area. This tool also reduces injury behind human negligence, in managing a job.

Keywords: magneto, stick, reducing injury, collect.

1. INTRODUCTION

The "Magneto stick" project aims to assist in reducing the frequent semi-critical injury cases in the construction site area. Most of the wastes consisting of zinc, nails, screws and others associated with iron fragments, in addition to rusting it, will cause the patient to become more critical.

In addition, the Magneto stick is not restricted to use at construction sites but it can also be used anywhere to pick up the cast iron tools everywhere. Magneto stick is a magnetic arc that results from a coil that surrounds the iron, then the current that connects the positive terminal and the negative terminal is connected then the occurrence, magnetic induction. Magneto stick can be used in two forms of use either direct current (DC) or alternating current (AC). It is to simplify the process of using the project anywhere.

2. LITERATURE REVIEW

MAGNETO STICK innovate an existing electronic sweeper to simple, handy, portable and technology wise. To build the MAGNETO STICK, we only need to use the metal iron, coil, wired 2.5core, insulation stick, and switch button. The difference between the existing machine and developed MAGNETO STICK is easier to hold (handy), and easy to bring anywhere because it using DC supply.

Additionally, we use suitable size of coil to ensure it suitable with current and volt that been use. We also use switch button that manage to support 15amp. It is been used to allow the current flow through coil and magnetic field occur, for on and off button. The attention, survey and focus on such machines that available and make it easier to use then capable to bring it everywhere. Figure 1 shows the machines commonly used by workers at present.



Source: (actual picture)

Figure 1: Example of common machines

3. METHODOLOGY

MAGNETO STICK is developed in two phases. The first stage is the project planning starting from August to November 2017. The second stage involves the construction of the project from January to March 2018. Gantt chart as table 1 and table 2 shows the activity that has been implemented.

Table 1: Activity in phase 1

No	Activity	Week																	
		1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	
1	Registration week	█					█						█						
2	Project briefing		█				█						█						
3	Project brain storming			█			█						█						
4	Gathering project idea				█		█						█						
5	Project survey					█	█						█						
6	Finding analysis						█	█					█						
7	Preparing proposal project title						█		█	█			█						
8	Project Designing						█				█	█	█						
9	Components finding						█						█						
10	Components analysis						█						█	█					
11	Prepare for presentation						█						█		█				
12	Project presentation						█						█			█			
13	Submit complete project report						█						█				█		
14	Revision week						█						█					█	

Table 2: Activity in phase 2.

No	Activity	Week																	
		1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	
1	Registration week	■																	
2	Searching Hardware equipments		■																
3	Coil testing on proto board			■															
4	Continue testing				■														
5	Hardware construction				■	■	■	■											
6	1 st report & running system							■	■										
7	Start fixing								■	■									
8	Continue project construction/modification									■	■								
9	Testing confirmation											■	■	■					
10	Project commission															■			
11	Prepare for presentation																■		
12	Project presentation																■		
13	Submit complete project report																	■	
14	Revision week																	■	

4. RESULTS AND DISCUSSIONS

Full specification of the MAGNETO STICK is tabulated in Table 3:

Table 3: MAGNETO STICK specification

Specification		Coil Free Load	
Dimension	5" x 33" x 8"	Voltage supply	12.0 VDC
Weight	1.47 kg	Starting current	7.0 amp
Full Capacity	5.0 kg (iron)	Running current	7.0 amp
coil with weight	247 coil		
Weight	2.5 kg		
Starting current	7.0 amp		
Running current	7.0 amp		
coil with weight	116 coil		
Weight	1.6 kg		
Starting current	7.0 amp		
Running current	7.0 amp		



Source: (actual picture)

Figure 2: Magneto Stick

5. CONCLUSIONS

As a conclusion, the use of this magneto stick, very important around the construction site, mechanical workshops and also used iron-iron depots, will help to ease the process of lifting iron or finding an iron-based object in a remote place or in a narrow place. This magneto stick is a potential project to be commercialized in the market.

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