

2008 TAIWAN INTERNATIONAL SCIENCE FAIR

CATEGORY : Engineering

PROJECT : Shock Induced Battery

AWARDS : Engineering Second Award

SCHOOL : ST.Paul College

**FINALISTS : Tang Wing To
Kwong, Trevor Siu Kai**

COUNTRY : Hong Kong

APPENDIX 2

ABSTRACT OF EXHIBIT TAIWAN INTERNATIONAL SCIENCE FAIR

CATEGORY: Engineering

TITLE: Shock Induced Battery

NAME: Tang Wing To, Kwong Trevor Siu Kai

COUNTRY: Hong Kong (China)

Contents of Abstract: (maximum 500 words) include

a. Purpose of the Research

Evidence has shown that people are becoming more aware of environmental protection than in the past. Not only has the government made every effort to implement the policies of environmental protection, but Hong Kong citizens are also more willing to cooperate and help out. However, when it comes to conservation of energy and reduction of wastage, many people still regard it as a burden and they just take it lightly.

In fact, environmental protection can be achieved in a convenient and simple way. We can easily put in practice in our daily lives. Because of this, we would like to introduce our invention - "shock Induced battery" by using our knowledge of Physics.

b. Procedures

The "Shock Induced battery" makes use of locomotion of human bodies to generate electricity. The electrical current generated from the specially designed generator will pass through the diode bridges, which adjust the current to one direction. This enables the electrical energy to be stored in the capacitor. This energy will be released when the battery is correctly connected to a circuit with a switch and a resistor. One of the features of the battery is that it is portable. It is mainly used to charge up electrical devices. But it is hoped that it will replace non-chargeable cells one day, and can directly be used in any electrical devices. In fact, our ultimate goal is to reduce the wastage of materials for making the cells, and to solve the problem of disposal of these cells.

c. Data

The induced a.c. voltage is full-wave rectified by the diode bridge.

$V_{a.c.}$	$V_{d.c.}$	$V_{a.c.}$	$V_{d.c.}$	$V_{a.c.}$	$V_{d.c.}$
0.00	0.000	1.00	0.400	2.00	1.050
0.20	0.000	1.20	0.450	2.20	1.200
0.40	0.015	1.40	0.600	2.40	1.350
0.60	0.200	1.60	0.650	2.60	1.525
0.80	0.300	1.80	0.800	2.80	1.750

d. Conclusions

In a word, we are trying to provide a chance for people to put environmental protection in practice, so as to raise the awareness of people about environmental protection. After all, high-tech products only solve the power-saving problem to a certain extent, but it is the awareness and the initiatives of the public which matter. We are convinced that environmental protection brings fun to your daily lives, as you will find practices on environmental protection both convenient and simple.

評語

- 1) 本作品以搖晃生電原理，作為電池產蓄電力之用，特別著眼於綠色環保功能，頗有創意。如是產出之電池並透過二極體電橋導向，存儲於核心圓柱體電容之內。
- 2) 本作品善用人為身體運動以搖晃生電，因為電能蓄儲以電容可攜為主，相當方便。然於技術性之元件規格及定量化格式，若能更為詳盡，可讀性將更高。