

森泰吉郎記念研究振興基金

「研究者育成費 修士課程・博士課程」

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研究成果報告書

研究課題名 「ENERGY DESIGN が担う途上国教育と地域振興の役割研究」

政策・メディア研究科 博士課程 1年
大西卓哉

ENERGY Gift mini プロジェクト

本プロジェクトは、「エネルギーをデザインして社会を変える。」というモットーのもと、途上国における社会貢献プロジェクトの新しいひな型を開発し、それを実践する目的で行われた。それはタイの無電化エリア、ハン島の子供たちに、夜でも宿題ができるよう、再生可能エネルギーを利用した、ソーラーLED を届けるプロジェクトである。しかし、ただ完成したプロダクトを寄贈する従来型的一方通的な社会貢献プロジェクトではなく、その持続可能な活動を目指すチーム作りから計画された。

本プロジェクトは、タイ現地大学 KMUTT と共に、現地学生らのために、自らの国内の社会問題への気づき、学びの体験、支援することの重要性や達成感などを提供しつつ、インフラの整っていないエリアへの支援をも同時に達成することを目指したアカデミック・プロジェクトである。この目的達成のため、下のように「3つの教育」に根差した、新たな社会貢献プロジェクトの在り方を計画し実践した。

1) 大学教育：プロダクト開発

現地 KMUTT 大学との連携により、電子工作、ロボット工学、デザイン学科等のカリキュラムに本プロジェクトの開発を取り込み、高等教育の一環として、デザイン開発を行った。ワークショップ、イベント等に参加した学生らは、皆それぞれの分野の専門知識を持った、学生らであったが、領域を横断して一つのプロジェクトを完成させることは、通常の授業では体験できない有意義な教育プログラムであった。また、この活動は、自国内に未だ解決されていないエネルギー問題、貧困問題、社会貢献の姿勢などを学ぶ良い機会を、現地の学生たちに与えることができた。

2) 小学校教育：教育玩具

このプロダクトは、組立てキットとして、子供たちに配られた。これは 4 ステップで簡単に組み立てられる教育玩具である。自ら組み立てることにより、子供たちは、ソーラーパネルが発電し、バッテリーに蓄電され、LED が光るという仕組みを、体感的に学ぶことが可能である。これは、Renewable Energy Native の子供を育てるという大きな目的を担っている。また都市部の子供たちは、この組立てワークショップに参加することによって、まだ電気の無い子供たちの存在を知ることとなり、これからの社会のありかたを考える切掛けになってくれればと期待している。

3) 無電化地域教育：進学率の向上

途上国にはまだ沢山の人が電気の無い生活を強いられており、タイにも、国境や離島などに、まだそのような地域が多く残されている。そのエリアの子供たちの進学率は低く、高等教育の行き届かないコミュニティは、産業も乏しく、経済状況は一向に改善されない。故にインフラを整備する機会がないまま、地域住民は暗い夜を過ごさなければならないという悪循環に陥っている。この悪循環を少しでも緩和できるよう、ソーラーLEDで無電化地域の子供たちに、学びの面白さとその可能性に触れてもらうために、このプロジェクトはデザインされている。このプロダクトの面白さに魅了された子供たちが、中学校へ、高校へと積極的に進学を目指してくれることを期待している。

結論：

途上国におけるインフラ整備や、無電化エリアへの支援など、先進国からの大規模な支援資金で行われている地域で、これらは大きな成果を生んでいる。では、そのようなプロジェクトが興らない地域はどうなのだろうか？向こうから支援が来るまで待つのではなく、積極的に自分たちで取り組める方法を本プロジェクトで実践した。我々のように潤沢な資金がなくとも、社会貢献活動に一定の成果を出せたことは、今後、途上国のコミュニティが自ら歩き出せるモデルとなりえることが証明された。途上国においても、現地大学のリソースは多くの場合十分にあり、支援チームの形成が上手に出来れば、社会支援活動の地産地消が可能といえる。今後このプロジェクトを積極的に継続し、この持続可能性を実践していきたい。

ENERGY GIFT **MINI** PROJECT REPORT 2017

DIRECTED BY ENERGY MEET
SUPPORTED BY Light Me Up, KMUTT, SO+AD, Keio Univ.



in HANG ISLAND, THAILAND

GIVING "MINI" SIZE ENERGY FOR KIDS.

We are aiming to glow society by giving children little energy and education. Children are future treasure and if we grow them the society itself will develop.

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01 / 10 **CHILDREN WITHOUT LIGHT**

DATE & PLACE
01 SEP 2015
HANG ISLAND

WE DEVELOP THE SOCIETY BY ENERGY.

This is how children in non electrical area study at night time. We went for observation before the event and saw the real life on island. We want to create the society with out inequality of energy division.

ENERGY GROWS SOCIETY

OUR BASE CONCEPT LIVES IN MINI PROJECT.

We are aiming to glow society by giving children little energy and education. We believe children are keys for development. Growing children leads to growing the society itself.



- ENERGY GIFT

We all have a right to access the energy necessary to sustain human life. Unfortunately, as things stand, energy supply can be for reasons of poverty, economy, politics, population and culture. "ENERGY GROWS SOCIETY" is our belief and our mission is to help people achieve their own life goals. In many developing countries, where small communities remain widely spread over a large continent, people have been facing the difficulty of connecting to an energy grid. ENERGY MEET have thus been collaborating on philanthropic projects with KMUTT for many years. ENERGY GIFT is container package with 80 solar panels. It provides 40.8kWh/day.



- WHY ENERGY GIFT MINI

As the ENERGY GIFT concept remains costly, we have established a smaller energy project know as "ENERGY GIFT mini". The mini is only a palm-sized device with solar-powered LED lights that provide free light for poor kids wanting to study after dark in off-the-grid areas. Our alternative mini energy gift can magnetize a wider variety of supporters, such as organizations, companies, schools, individuals, even young kids can engage with the relief project, exposing themselves to electronic science whilst dedicating their effort to helping poor friends at the same time.

SECRETS OF ENERGY GIFT MINI

LITTLE FACTS OF OUR PRODUCT

We designed ENERGY GIFT mini for kids education. So we focused on playful design to attract children's attention and have playful learning.

FACT 01



DESIGN DEVELOPMENT

KMUTT STUDENTS COLLABORATION

Our design team is formed by SOa+d design students and engineering team is formed by FIBO engineering students both from KMUTT. We aimed to train students by letting them go through professional jobs and real projects. So our project is developed in collaboration with many professionals, young motivated designers and students.

FACT 02



BUILDABLE PRODUCT

PROVIDING ADVANCED EDUCATION

Our product is not the release of a ready-made lightning device, rather it has been designed as an "assemble-kit" for school children to fabricate in their electronic science class. For this reason this product is also attractive for developed city kids. We hope people from all around the world would feel like want to own this product.

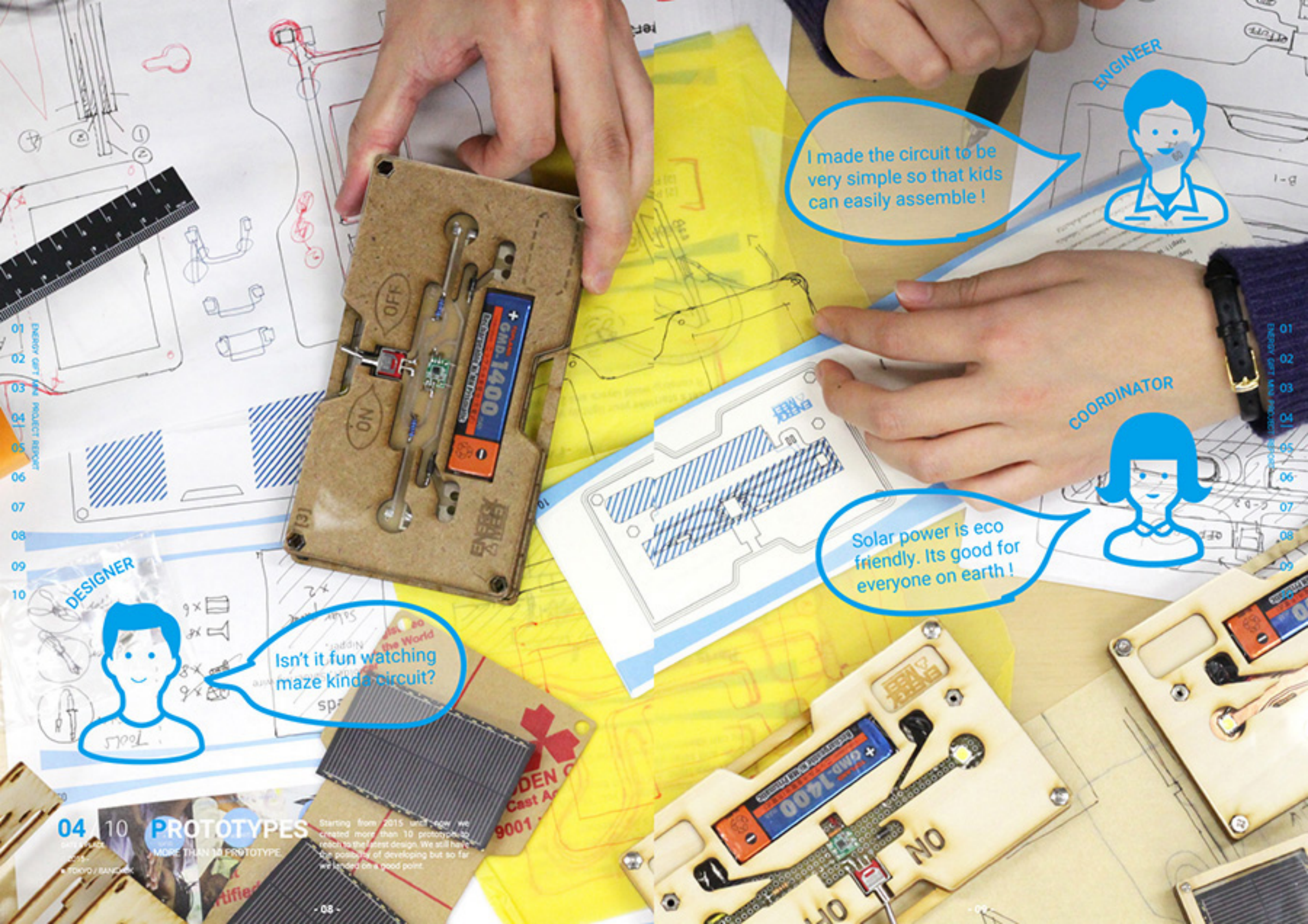
FACT 03



STUDY AFTER DARK

MAIN THEME OF THIS PROJECT

So we learned that our project is including education in ever process. But of course our main prospect is to let all the students have time to study at night time. There is still many children living without lights. They usually suffer from poverty as well so they have to help their parents work at day time and dont have time for studying at all. We hope to create the study time by expanding their night time.



ENGINEER



I made the circuit to be very simple so that kids can easily assemble!

COORDINATOR



Solar power is eco friendly. Its good for everyone on earth!

DESIGNER



Isn't it fun watching maze kinda circuit?

04 10 PROTOTYPES

MORE THAN 10 PROTOTYPE

Starting from 2015 until now we created more than 10 prototypes to reach to the latest design. We still have the possibility of developing but so far we landed on a good point.

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05 / 10

DATE & PLACE

DEC 09, 2017
HANG ISLAND

HANG ISLAND

THE ISLAND WITHOUT ELECTRICITY

Thailand is electrified for 95%. Most energy exists in Bangkok and there is still few small island left behind. Hang island near krabi resort is one of those islands.



- GRAPHIC 01

TITLE:

AERIAL MAP

Rubber Farm

Hang Island is located in well known resort area. But island itself is surrounded by rubber tree and doesn't possess any beach. 99% people live by rubber farming but this industry is known as poor industry inside Thailand.

06 / 10

DATE & PLACE

DEC 09, 2017
HANG ISLAND

BAN PAKASAI SCHOOL

THE ONLY SCHOOL ON ISLAND.

This is the very only school on island. Many students dream about higher education after elementary school but most of them give up on their dreams and choose to work on rubber farms to help their family instead of taking long time for studying.



- GRAPHIC 03

TITLE: PHOTO

10 min ride from Krabi

This little boat is the only way to the main island. And this port is the only entrance of this island. Its just a 10 min ride from the main island so access is not that difficult.



- GRAPHIC 02

TITLE: LOCAL MAP

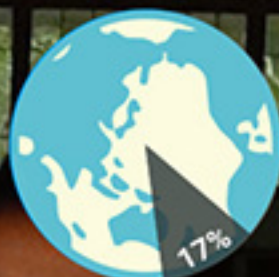
The Forgotten Island

Every island near Hang island is already cultivated as a tourist site. Its all because the other islands have beautiful beach. We can see from this map that all the other island except Hang is connected by red line. This red line shows the road. So we can clearly understand that this island is isolated.

FIRST PROJECT
DEC, 09 / 2017

WITH BAN PAKASAI SCHOOL STUDENTS.

Let's see the issues from the data about non-electrical area and children who lives in there.

NO
ACCESS TO GRID

SOURCE: WORLD ENERGY OUTLOOK

in 2015, 1 person in 6 people is living without electricity. Saying world population is 6000 million people, 1000 million people still doesn't have electricity.

5% LEFT TO LIGHTEN UP
IN THAILAND

small island left behind.

95% is electrified in Thailand so it is hard to think about 5% that is left behind the development. But what if we think like it is only 5% left? We can try a bit more to make it 100%.

BAN PAKASAI SCHOOL
STUDENT DATA

Up to elementary school.

Most of the student in this island stop studying when they graduate this school. It is not that they don't like studying but they have to help their family business rather than going out of island and go to middle school in main island.





07 / 10

DATE & PLACE
01 DEC 09, 2017
HANG ISLAND

EGM DONATION PROGRAM VOL.1

LEARNING BY ASSEMBLING ON THEIR OWN

This is our first time holding events and donating our own product to children. We ran the event as assemble workshop and prepared several steps to organize and tell children what we really wish.

ACT 01

TITLE: PICTURE BOOK

Learn what is energy and the usage.

Before assembling we wanted children to understand what makes the light. By using picture book we tried not to lose children's interests.



ACT 02

TITLE: ASSEMBLE IT

Children tried to build the light on their own.

Package has the assemble book composed and they tried to assemble the product on their own. Univ students were watching them and gave them little help but most of them didn't need help.



ACT 03

TITLE: CAUTION

Cautions from engineer.

At last of assembling. Engineer told children what they have to care about when they use Energy Gift Mini.



ACT 04

TITLE: FEEL THE SOLAR

Charging the battery with solar power

Children immediately ran out side and hold up the product trying to change the battery. We could know that they are so looking forward to use them tonight.



NGO LIGHT ME UP

EDUCATIONAL GIFTS

Light Me Up is teamed with 6 business women normally working in Bangkok. They coordinate the place, date, and the contents in the interval of their usual work. Also on this collaboration Light Me Up was the connection with this island.



English Station. Teaching children little english by playing card game.



Hula Hoop Station. Shading with english and learn compromise.



Drawing Station. Drawing leads to express children's imaginations.



Health Station. We taught cleaning their hands teeth and everything leads to health.

08 / 10

DATE & PLACE
01 DEC 09, 2017
HANG ISLAND

LEARNING ACTIVITY

4 DIFFERENT STATION. LEARNING BY PLAYING.

NGO light me up is holding class in school of poverty areas once a year. This year we collaborated and had classes together. In this page we will introduce light me up annual activity. They made original games to play and learn with children.

09/10 PROJECT MEMBER

DATE & PLACE

0 2017

● TOKYO / BANGKOK

WE ARE MADE OF MULTI TALENTED MEMBERS

Each 3 team had their function and for this reason, we could have worked smoothly. Also many university students and young talented people are involved.

10/10 SPECIAL THANKS

DATE & PLACE

0 2017

● INTERNATIONAL

THANK YOU FOR SUPPORTING US.

We are supported by so many people until now. We will continue making effort from now on for farther prosperity. keep checking us!

ENERGY MEET / KEIO UNIV

- TAKUYA ONISHI

PROJECT DIRECTOR

Co-founder at ENERGY MEET Co.Ltd
Co-ordinator at ENERGY DESIGN PROGRAM (EDPMUTT)

- MASATO ASHIDA

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Co-founder at ENERGY MEET Co.Ltd /
Founder at Ashida Architect & Associates

- HIROAKI OHBA

DESIGNER

Research worker at Keio University

- MIZUKI ABE

CO-ORDINATOR

Energy Design Lab student at Keio University

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- SHIN TAINAKA

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Co-founder of 4CYCLE/ Communication Design
planner

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CO-ORDINATOR

Industrial Designer/ Professor at SO+AD

- PAWITREE DECHANA

CO-ORDINATOR

Administrative staff

- SMITT LOHA-UNCHIT

DESIGNER

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Professor at SoA+D

- SILAR WONGSUNTORNPOJ

ENGINEER

Phd student of robotic and automation

- POTIWAT NGAMKAJORNWIWAT

ENGINEER

Former Failure Analysis Engineer at Designer/
Former R&D Engineer at Digital Research and
Consulting Co.Ltd

NGO Light Me UP

- THISANA THITISAKDISKUL

CO-ORDINATOR

CEO of ETP / Project leader of Light Me Up

- SAVITA NAMANGKALAKUL

CO-ORDINATOR

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ACTIVITY LEADER

Technical consultant at Swatch-Packard
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- TANUT UNGWATTANAPANIT

STATION MEMBER

Stress Engineer/ ICB Support Services GmbH
Germany

- RAVITA FASAWANG

STATION MEMBER

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- CHANAKARN ALISANANT

HEALTH & HYGIENE ACTIVITY

Doctor at Phippiet Hospital



SPONSOR



VOLUNTEER STUDENTS

- Chanothai Wangmontree / Industrial Design student
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- Perapot Chanyuenyong / Industrial Design student
- Nachapon Hamtawornchaikij / Industrial Design student
- Yanisa Rongbundit / Industrial Design student
- Thanayuth Unpresert / Designer at CAL Design, student at SoA+D
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- Wasupol Worawarachai / sophomore robotic engineering & automation FIBO
- Aiyakan Sutarpot / sophomore robotic engineering & automation FIBO

DONOR / CROWD FUND

