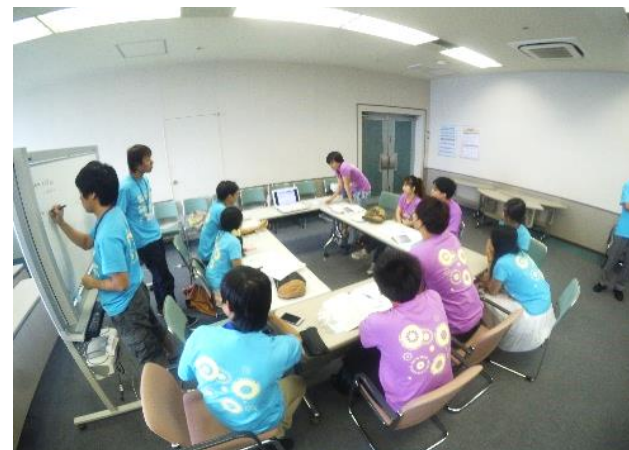




TTI SUMMER SEMINAR
TOYOTA TECHNOLOGICAL INSTITUTE NAGOYA JAPAN
19 AUGUST 2015 – 26 AUGUST 2015
MR.NATTHANUN ANANSITIKORN STUDENT ID. 55111047-1
DEPARTMENT OF AUTOMOTIVE ENGINEERING
THAI-NICHI INSTITUTE OF TECHNOLOGY



2015



Hi everyone, my name is Natthanun Anansitikorn My nickname is Card I'm 4th year student of Automotive Engineering at Thai-Nichi Institute of Technology. I have participated in TTI Summer Seminar at Toyota Technological Institute of Technology by recommendation of my advisor Asst. Prof. "Wimol San-Um". After I passed all procedure. This is the starting point for my best experience.

TUESDAY 18 AUGUST 2015

First day at Suvarnabhumi airport, I said goodbye to my friends and my family while meeting trip Participants "Mai" Ms.Peangkwan Anantakaroon and travelled together to Nagoya, Japan by Japan-Airlines.



"JL-737" is our flight number. We left Thailand at 23:50. The flight took 5 Hours and arrived "Chubu-Centrair Airport" at 8:20 Hrs.



WEDNESDAY 19 AUGUST 2015



After we said "Thank you" at Japan immigration and walked through the waiting area. We saw Japanese people waiting for us with smiling. We introduced ourselves together and everybody looked happy. I met new friends from another country and talking while waiting until another participants arrived.

We went to TTI by bus, this time I met my group leader "Yuri Sato". Actually we already familiar for a long time but she is more beautiful than her picture. I looked



through bus's windows. Landscape beside Japan's road is very beautiful and clean.

We arrived at TTI. Then TTI students took me to the dormitory "TI-House". And introduce us about facility in the room and dormitory area. I've learned new things about Japanese culture. Such as bed, toilet, a lot of automatic machines. Laundry and the most impresses things for me is "waste separation process"



<<< Automatic vendor machine

<<< Toilet controller

Room for short lived students inside>>>
dormitory



In the afternoon. TTI students took us to Department store and Ramen Restaurants near to TTI. Ramen was very good taste and different from Thailand. After that we went to Lawson shop.

My group leader "Yuri Sato">>>



<<<Yuri introduce me about Ramen

First meal I Japan "Ramen" >>>



I've talking about the schedule of that day and I just said about how to buy internet Sim card. It was very excited for me because ten kindness students bring me and Mai to subway and took us to **Yamada shop** just for buy a little Sim card.



After that we walk back to TTI Dormitory instead of subway. It took 30 minutes for 2 Kilometers (2 subway stations). This moment I've explored and observe about a Japanese car, house, road, shop, city, town plan and business beside the road.



Japanese car showroom ^^^



^^^Walking from Yamada Shop



Electricity meter in safe box >>>



<<< Zone for electronic waste

Fuel station, every oil type had same price >>>





This night Japanese people bring us to dining at Tapaton Japanese style restaurants. I've tried real Japanese Sukiyaki. TTI Students teaching me how to ate it easily and following by the culture, the ingredients is pork, vegetable, Miso-soup and a little bit chilly. The

taste was very delicious. I really loved it.

Before going back to dormitory we went to supermarket for bought some snack because this night we were getting ready for speech presentation in the next day morning.



Night working at center room ^^^



THURSDAY 20 AUGUST 2015

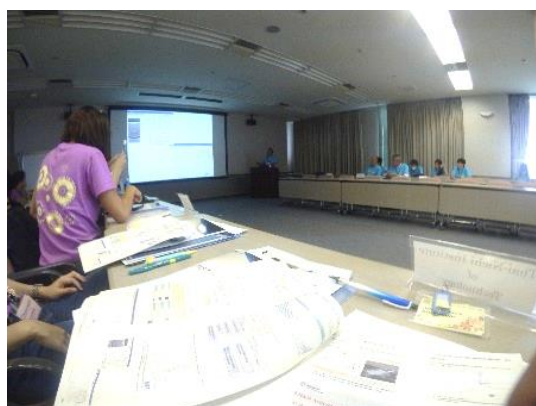
We woke up in 6:00 Morning and met everybody at the cafeteria. The breakfast already set for us. I use a coupon from TTI students to redeem. This breakfast was easy but delicious. Students can get beverage at the automatic water dispenser machine by choosing water or tea (with hot or cold function). After finished, everybody must keep their equipment to cleaning zone and separate food waste out from the dish and following the step until finish.



Food in TTI cafeteria >>>

This morning activities is "Opening Ceremony". We went to Honkan Hall for the event. Firstly TTI senior director speech oratory for welcome seminar member from around the world. Then member are introducing about their country and themselves.

Moments I feel a little bit fear because too many people looking at me including senior teacher and lots of professor but it was very well. And then senior professor was lecture us about technology and energy all of the morning.



^^^ Keynote Lecture

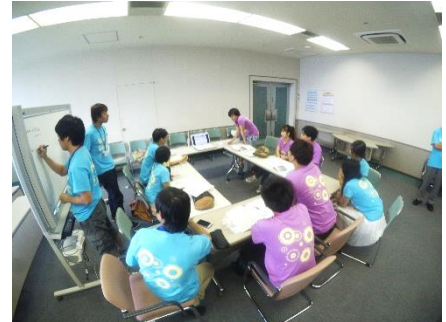


Introducing myself to TTI professor and friends >>>



^^^ Group discussion

In afternoon we start group discussion, in first discussion we was sharing each presentation and create a detail together for make group direction. Our topic is **"New vision of clean energy"**. Everybody are share their information together. I've learn about new vision from another students information. This is the best way to knowledge in new things, because each people have their opinions that is different. Group discussion can combine everything's in one time



Brain storming for "New vision of clean energy" ^^^



^^^ Control machine to help people walking

After group discussion we have experiment time. TTI students lets us go around and visit lab, start from thermoelectric that can change differential of thermal in different side of device to be electric. Studying about robots human walking machine for help people to walk, events in this afternoon is very excited and surprisingly for me because the knowledge is very novel and impend to my attention. I really love this events because I learned new technology and innovation that will change the world soon.



"Knowledge is very novel and impend to my attention..."

This night we have Welcome Party. The party was very fun, everybody separate by groups and introduce themselves to another people. Everybody happy because food and drinks are very good, I met new Japanese friends and knows them better because alcohol can melt shying of people. I already gave Muay-Thai pants to my group leader "Tenku" as same as "Mai"(my friends) did with her leader, then



our group reader are fighting. Looser must bottom-up the beer. This show made everybody laugh of loud and make us got a good sleep.

Muay Thai flight at TTI ^^^
Everybody become "Friends" >>>

<<< Alcohol can melt shying of people

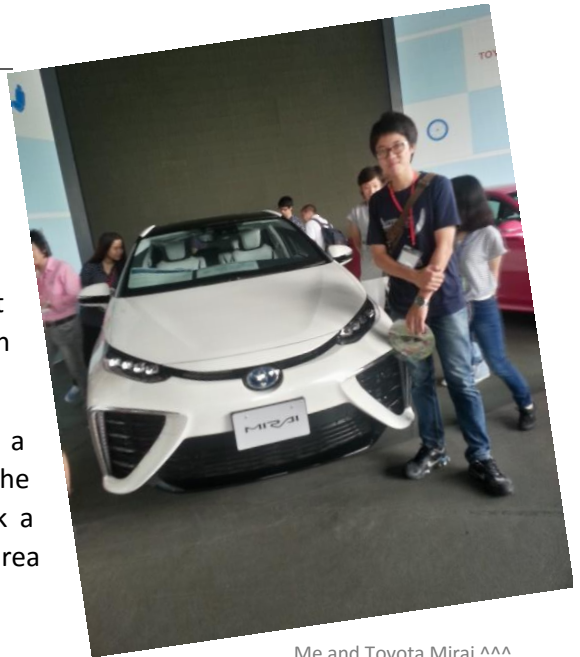


"Alcohol can melt shying of people..."

FRIDAY 21 AUGUST 2015

Today morning I work up early and felt so excited because we are going to **Toyota Factory** for excursions and learning about Toyota management system and production technology. In Toyota factory can't take a picture because everything is know-how and be a secret. I've learn about Toyota history and the **Toyota Production System (TPS)**. That is about implementation of production rate. Reduce lost and mistaken in production line and improving quality and efficiency.

I thought that this is the best practicality for production. a guide navigate us to visit each section in Toyota factory. This is the best knowledge and learning from real experience. I've took a picture with fuel cell car "Toyota Mirai" then I realized that this area can't take a picture but pictures are already in my phone.



Me and Toyota Mirai ^^^



We had launch at Hotel Foresta, this hotel located in the hill with beautiful landscape, our launch is **Bento** set menu and the taste is extremely delicious, every food in the dish was arrange tenderly and beautiful like arts, but I realized that this is the food, after launch we went outside of the restaurants for absorb the gentle of natural. The air quality was very clean and fresh. landscape is the most beautiful.

<<< Bento Set

BOOOOOOOM!! >>>



In the afternoon we went to Toyota Eco full town for learning about clean energy. Toyota eco full town are very full of knowledge about energy. I visit the Eco house and looking for **Energy management system** that can manage energy from solar and electricity together for electricity saving.



>>>

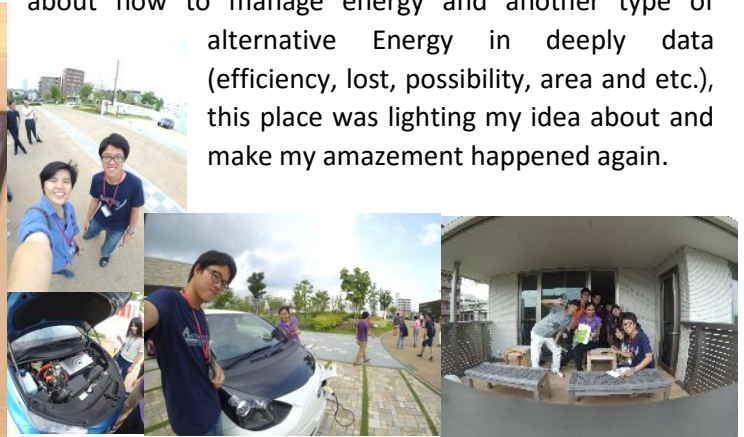
Toyota Eco Full Town

-Hydrogen Station

-Small Electric car



This town I found Fuel cell station and many fuel cell car are add fuel in this station, in another field I learn about how to manage energy and another type of alternative Energy in deeply data (efficiency, lost, possibility, area and etc.), this place was lighting my idea about and make my amazement happened again.



^^^ Each Zone of Eco Full Town

<<< Smart Home information display

This night we dining in Yakizoba restaurants. Dinner is self-fired Yakisoba, Yakisoba surf on the big flat pan and make it by myself. I was eating directly from pan and it still hot but no matter how hot is the food I still got cold Japanese beer. This dinner look like an unofficial party. Everybody look much funny and familiarize. I've talking about Japanese everyday's life with Japanese people. So I realized that this one type culture exchange



Because of tomorrow morning is Nagoya sightseeing. Tonight we have a lot of activities and we drink more beverage. Some group played cards while some group are talking. Cooking is very easy for students because kitchen is in every center room. We exchange about our university Life, Studying, attitude, experience and future. This things opened my world and conversation lets me see lots of things in new vision that I've never seen before.



<<< Playing Cards



<<< Making Magical Sushi

Let's familiar >>>



SATURDAY 22 AUGUST 2015



Today is very excited day. I woke up a little bit late same as other people, TTI students took us to **Nagoya castle** by subway, they gave us a one day thicket pass and this pass can use in many transportation such as subway, bus, sky basket, together is better.

<<< Good tourist information in subway



Beautiful subway gate ^^^

Standing people must keep left >>>



I arrived at Nagoya castle and Yuri leaded us to have a Japanese style **Matcha tea**, the taste is a little bit bitter and dark but it exclusive. Japanese culture need to turn a cup in 180 degrees before sip and turn 180 degrees again when tea is depleted and following by small sweets, so comfortable and softly.



Delicious Matcha green tea ^^^
<<< In the tea room

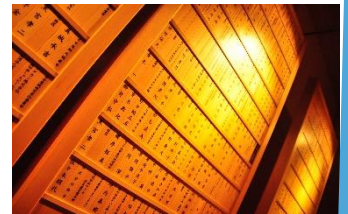
Japanese culture >>>



The government spent a lot of money to renovate it for longer lifetime, because this place are historical place...

Then we went to Nagoya castle. This castle was built in Edo period (1620-1870). This castle had 6 floor. Each floor are different. The top is souvenir shop and city landscape other floor is history exhibition and information. The government try to save this historical buildings as long as they can. I heard from Japanese friends that their government spent a lot of money for

renovate for longer lifetime. Because this place are historical place. We can watch many shows in each area and I'm so lucky because I've watch Samurai show.



From L to R, Outside Nagoya castle, TTI students, Samurai show, Room inside the castle, Samurai sword

In the afternoon Yuri took us to **Toyota Museum**. Toyota museum is the knowledge of Toyota history, technology, innovation, and the development. I've learned that Toyota was born in Nagoya with textile and garment industrial before change to automotive industrial. It so surprising that sewing machine can develop to automotive. This museum grew up my passion about car.



Testing equipment >>>

“The knowledge from Toyota Museum can be adapt for using in my engineering project and career...”



Using robots to get faster production rate and Lessing mistake from people

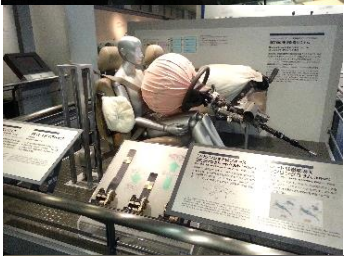
<<< Working of high performance suspension >>>



I was learn about engine, suspension, electrical, design, structure, material, vision, testing and etc. in term of technology, assembly, research and development. **the knowledge from Toyota museum can be adapt for using in my engineering project and career**, so sadly because time is never enough and we need to go but I will visit here again.

<<< Old car Designing

Interior car design and concept >>>



“I Must visit here again...”

<<< Studying principle of safety system such as airbag and pre-crash



^^^ Different and development of engine in each generation



^^^ Results of research and development



^^^ Car's seat development

Today dining is 100 yen sushi restaurants, this restaurants are very famous in Nagoya. Lots of people are waiting for take it. Sushi are coming by long belt by different type. I was funny eating and pulling the sushi from belt for myself and other people. Another excited things are from Information display that I can see the picture and order it. When my sushi are coming the screen will show alert picture. In other time the screen will show sushi advertisement for attend customer to order more and more. The most important things is taste. Taste was very good in every dish. I was very enjoy this meal. It was very tasty and type of sushi is very much.



^^^ Delicious and cheap Sushi



Sushi line and information display ^^

“Screen will display Sushi advertisement for attend customer to order more and more...”

SUNDAY 23 AUGUST 2015

This is the free day in schedule. Yuri took us to aquarium in this morning. We have a breakfast in coffee shop near to TTI. The price of breakfast is 1,000 Y with big dish and clean. Every restaurants in Japan are very clean and meticulous.

Breakfast >>>



“Every restaurants in Japan are very clean and meticulous...”



“Public transportation in Japan are very on time...”

We haven't much time because the bus are coming. The public transportation in Japan are very on time. At the bus stop I saw wheelchair. When the bus coming it stop and level-down for wheel chair accessibility. Then the bus level-up and go.



Inside Japan bus ^^



At the aquarium we paid 2,000 Yen for admit. Firstly I think that is little bit expensive but the shows make it cheaper, the show was extremely fun and powerful. Aquarium is full of kids and family. The safety of the show and each part of aquarium is very well. it can protect the kids from dangerous. Description media in aquarium is easy to learn (picture and sound). If I have son I will visit this aquarium again

In the aquarium and restaurants >>>





Early in evening, TTI students invited me to Higashi-Betsuin Festival. This festival people comes and dance together in traditional Japanese song and famous restaurants in Nagoya are joined the exhibition. I was fun in dancing and eating Japanese food and song.

Dinner is buffet Japanese mixed style. I was so excited with automatic water dispenser. I just decided and press the button then the machine will mix the water for me. Before went back to TTI Yuri took us to shopping again at Donki Hote department store and big camera (IT Store). After that we went back to TTI. Today is so tired but very happy and we still playing cards and exchange today's experienced.

“Higashi-Betsuin Festival...”

<<< Dancing in festival with fan

In the aquarium and restaurants >>>



MONDAY 24 AUGUST 2015.

Today morning have Lecture and experiment. I learn about algorithm in image processing. And then I learn about working of self-driving car at Mita sensei. The system in this car is the most excited and



the most interested for me. I saw a lot of camera, radar. Any sensor in this car is extremely high technology. Wheel sensor can calculate millimeter range in kilometers with 0.01M resolution. And high accuracy GPS receiver that can measure range in centimeters by satellite. **This lab** was

inspiring me about the applied sensor for using in car and make me understood in measurement principles. I can applied a lot of knowledge in

my real life. So the time is never enough again

“Amazing self-driving car...”



^^^
Teacher teach us about self-driving car algorithm



<<< Wheel sensor

(Top) Processing unit and radar display (left) Self driving car (Right) Tools and equipment (Radar, camera, GPS, sensor, Etc.)



remember.

In afternoon TTI students bring us to visit the part of TTI. I visit the library and historical of Toyota technological by interactive media. I realized that interactive media can change hard to be easy and picture is easier than text to

Group A Discussion "Feature vision of clean Energy" >>>

Group Discussion time is early in evening. Our group are making a power point for presentation. This discussion was very stressful because time isn't enough and data is much but we already preparing enough information and another senior students help us well. Our group discuss until night coming and tonight we have culture exchange.

Interactive Media >>>



"We've been worked together. Not for presentation but for learning how to work by Teamwork..."



Cultural Exchange activities happened in TTI house in front of TTI. I changed my closets to Yukata. This time I was very fun because I look myself better. Women are change to Kimono closets and everybody looked more beautiful. The next activities is Sushi making. I made sushi for myself with a lot of raw material such as Salmon, O-Fish, Tuna and Wasabi, the surprise things is I can ate Raw Wasabi but when another students from Korea and Taiwan ate it he was very sad and crying.

By the way this night we are lot of fun. we taking a photo together and took photo with another one and tonight we continue party at center room with a lot of fun and talking a lot again.

Kimono and Yukata >>>>



^^^ Origami



THURSDAY 25 AUGUST 2015

Today is the presentation day. In the morning until noon students did the last discussion for present to professor. That time was very stressful again. My group presentation have some problem and we need to combine comment from another students and change some information in slide because it was old data. We work until the last minutes then we got to present



The presentation of our group was good and passed well. The professor commented us about the mistake of presentation. I've got new knowledge from another group presentation that opened my vision. In last of events professor gave us is certification and some souvenir with speech oratory for closing seminar. Everything's continues well



<<< Senior students and professor leaved a comment in presentation



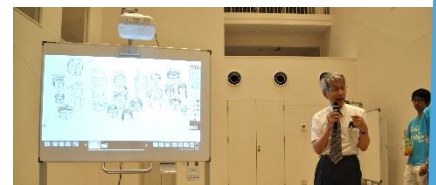
<<< Back of Toyota Technological



The dinner party was established in TI-House. Tonight everybody look fun but deeply in their hearts are sad because tonight is the last night for everyone. By the way party is going on and everybody fun. We talked about the experience in **TTI summer seminar** in each moments happened. The meal was very good and many kind. We drank beer and Japanese Sake while exchange talking topic. Everybody look deplore because time is pass too fast and the day is less. Features are coming and this moments are going to gone but we are still fun and took a picture together

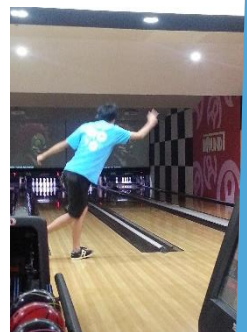


Party was gone but in the midnight we went outside for play bowling. Taxi came to pick us up to the bowling lane. The distance isn't far but the costs was very high (800Yen). The Taxi cost in japan is very high because people can choose another public transportation that cheaper but we had only one choice in midnight



Our taxi stop at the front of Round-1 bowling lane, the bowling was very fun and I felt so good. After finished bowling we went to play darts. It was new things for me because I never play darts before. I like the game-style it was create and good idea and good interactive picture and sound that can make player more fun. I've played for a lot of time until 3 O'clock then we realized that we might get back to get the last night.

Bowling lane in Japan >>>



<<< Very interested Darts



WENDSDAY 26 AUGUST 2015



I woke up early for say good bye with another students. They went to Airport in morning so they might leave soon. I said goodbye with another students at TI-House and feel sad because time fly too fast. Everybody said as same as I thought that. They don't want to go back but really is real. I can't tell this feelings easily. After we miss enough they keep them bag up. I standing and saw all of them walked far away until out of sight.



I realized that this is not ending. It was just starting point of us. Different people from different country and different culture become friends. Everything's of us are different but we have only one things is the same. We are TTI Summer seminar together. Things we've been through make our friendship forever.

I still in Japan for travelling in Osaka Kyoto and Nara until 31 August. My last day in Japan TTI students sent me at the airport and said goodbye to us. I felt so much impress everything's in Japan more than I can say. I trying to keep everything's for my life. **This experience in Japan already change my life forever.**

Thank you every friends for friendship and thank you **Toyota Technological institute of technology** for benefits, experience, life skills, knowledge and best opportunity for me.



TTI Summer Seminar 2015 at Toyota Technological Institute of technology 19-26 August 2015

Natthanun Anansitikorn 55111047-1 Thai-Nichi Institute of Technology

Appendix-My Presentation and speech

Future Vision for Clean Energy

Mr. Nathanun Anansitikorn
Automotive Engineering

Thai-Nichi Institute of Technology



Faculty of Engineering,
Thai-Nichi Institute of Technology (TNI), THAILAND



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Future Vision for Clean Energy

Future Vision for Clean Energy

WHAT IS CLEAN ENERGY



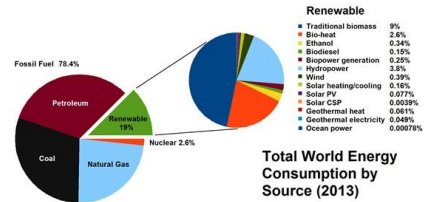
Renewable energy defined as energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves, and geothermal heat.



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Future Vision for Clean Energy

PROPORTION OF ENERGY USING IN THE WORLD



World energy from renewable energy? estimates that 19% of world marketed energy consumption is from renewable energy sources

Total World Energy Consumption by Source (2013)

Countries that Generate the Most Electricity from Renewable Resources



<< Electricity from renewable resources divided by each country

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CLEAN ENERGY SOURCE



(biofuels, biomass, geothermal, hydropower, solar, and wind)



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Future Vision for Clean Energy

Solar Cell

- Converts the energy of light directly into electricity
- Higher Efficiency, Lower costs
- Limited on topography



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Future Vision for Clean Energy

Wind Turbine

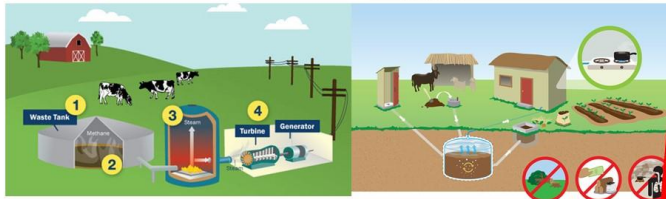
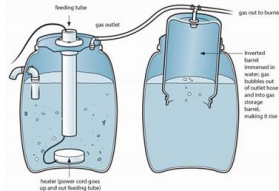
- Converts kinetic energy from the wind into electrical power.
- Connected to a generator to generate electricity
- Limited on wind speed and Density
- High cost Long Term return



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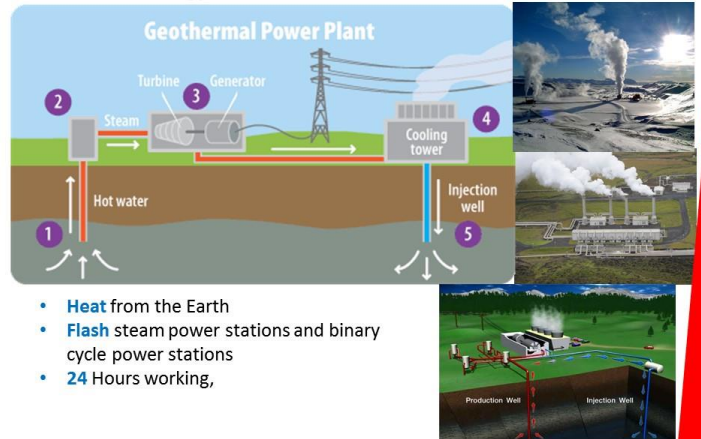
Bio Gas

- Produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste.
- Anaerobic digestion with anaerobic bacteria
- Easy to Use, but **Dangerous**



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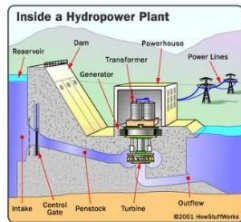
Geothermal Energy



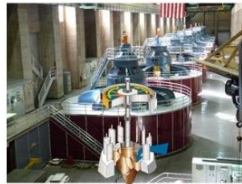
- Heat from the Earth
- Flash steam power stations and binary cycle power stations
- 24 Hours working,

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Hydroelectricity



- Using gravitational force of falling or flowing water to make electrical power
- Water driving a water turbine and generator.
- Depends on the volume and on the difference in height between the source and the water's outflow.



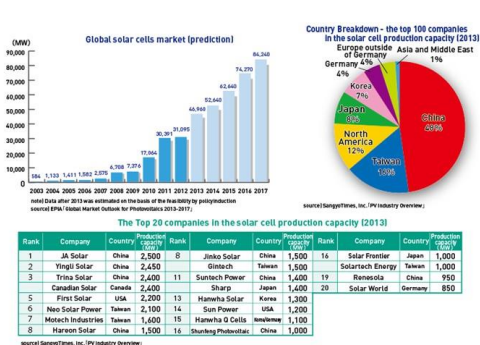
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Next Vision IMPROVE



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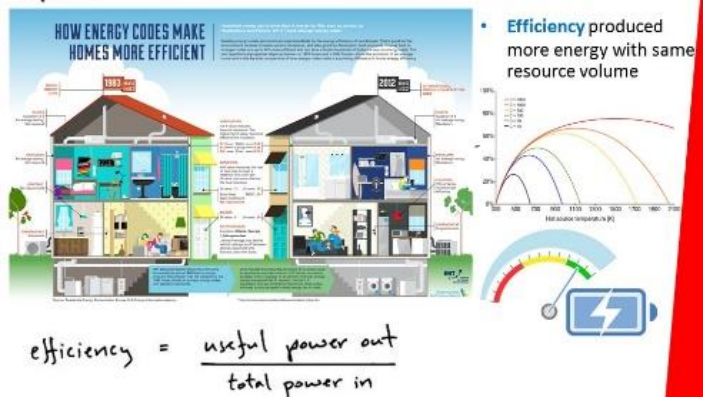
Improve



Performance ratio in easily

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Improve



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Speech

Good morning ladies and gentlemen

I'm very grateful for such a great opportunity being here today with my friend, Miss. Peangkwan.

My name is Natthanun. We are both representing Thai-Nichi Institute of Technology, in Thailand. Actually we are still senior students in the Faculty of Automotive Engineering there.

Thai-Nichi Institute of Technology is the only MONOZOKURI institute in Thailand which provides high level of knowledge in specialized fields and produce highly qualified graduates in industrial and management technology.

Myself, I am much interested in car design and its implementation, I had a wonderful chance to have joined The Student Formula Team of the institute which participated in the competition of The Student Formula Thailand

Miss Piengkwan and I had once participated with Toyota Thailand R and D on car design and development too.

I strongly believe that the Toyota Technological Institute Summer Seminar is going to be the greatest opportunity for us to improve our skills, knowledge and experiences along with the beauty of Japanese culture.

In addition, this seminar can connect us with people from many countries. Exchanging ideas and knowledge among all of us can lead to the successful outcome for everyone indeed.

Finally, we also would like to take this chance to express our gratitude to Thai-Nichi Institute of Technology and to Toyota Japan for giving us this once in a lifetime opportunity to be here today with pride.

Thank you very much