

Sekolah Menengah
Kebangsaan Sultan Ismail 2

Project's name:
SI2 HEAVEN

Members:

- ✘ Nor Syazwani bt Mohd Rafee
- ✘ Wan Aishah bt Wan Iskandar
- ✘ Muhammad Syahir bin Roslan

Supervisors:

Mohd Ridzuan bin Mohd
Norizam Mahmud
Nebaah bt. Bedul

PURPOSE:

- 1) Another way to save our money on electric's bills.
- 2) To build an effective energy house which is suitable to Malaysia's climate.
- 3) To save the non-renewable energy.

EQUIPMENT:

Gogo board, Solar Panel Devices, sun-seeker, cardboard, sensors, stationeries

INTRODUCTION

SI2 HEAVEN is a park where it has a gymnasium, public toilet, control room, and a playground. It is a modern park where we do not use electricity but we generate electricity from the facilities and use them to power up electrical items in the park such as the lights, the fans, AC units, automatic doors, and others. We have three merry go round that rotate the dynamo. The merry go round gives out the power that is stored in the electrical storage system (E.S.S). The gymnasium facilities can generate electricity as stored them in ESS. Customers who come and use the facilities will help to rotate the dynamo (if you are using the bicycle) and the electricity will be stored in the ESS. The toilet roof has two separate solar panels which convert solar energy into electricity and store them. The toilet is powered from the solar panel on the toilet roof. In contrast, we have four lamps that generate electricity. The lamps collect raindrops and turns the turbine in the tube of the lamps that is then

stored in ESS. At the front gate, there is an automatic door system. Basically, we try as much as we could to ensure that we do not leave out any ways to generate electricity so that we could conserve energy as much as possible.



Figure: SI2 HEAVEN

A) Solar Panel Devices

As the climate in Malaysia is rainy and hot throughout the year, the solar panels are used because the Sun is renewable. It is a waste if the resource is not fully utilized.

The solar panels are used because it is very suitable here as its warm climate. We can use **solar energy** as other source of energy besides electrical energy. The solar energy will be stored in the rechargeable batteries.

Two pairs of solar panels are put on top of both sides of the larger roof. Solar energy is used to provide lighting for the gymnasium and the public toilet.

B) Merry go-around

By building a playground, we can generate electricity by human power. The children will rotate the merry go-around instead of their energy goes to waste.

The merry go-around is one of the playground facilities that can create kinetic energy. The merry go-around is used to lighten up the lamps in the gymnasium. Besides the merry go-around, there is also a see-saw available to generate the

electricity. The see-saw mainly exists because we wanted to generate electricity to power up the fans and also the AC unit. If the merry go-around rotates this way, it will charge the rechargeable batteries. But if it rotates that way, it will stop charging but the energy will directly light the lamps at the park.

C) Facilities in the gymnasium

There is a lot of energy being waste by human when they went to the gymnasium for exercise. The human power actually can help to generate electricity by using the facilities in the gymnasium.

The facilities in the gymnasium are connected to the turbine. The turbine itself will rotate when people are using the facilities. With the help of human power, we can generate electricity to power up the fans and the lamps anywhere at the park. The extra energy are then stored in a rechargeable batteries in the control room.

D) Recycle lamps

Water is one of the renewable sources that we used in the recycle lamps. The lamps not only can water the plants but it also can generate electricity. By rotating the turbine inside the tube of the lamp, it will generate electricity like a dynamo. The turbine also generates the light of the lamps. The function of these recycle lamps are for daily use and generate electricity.

PROCESSES :

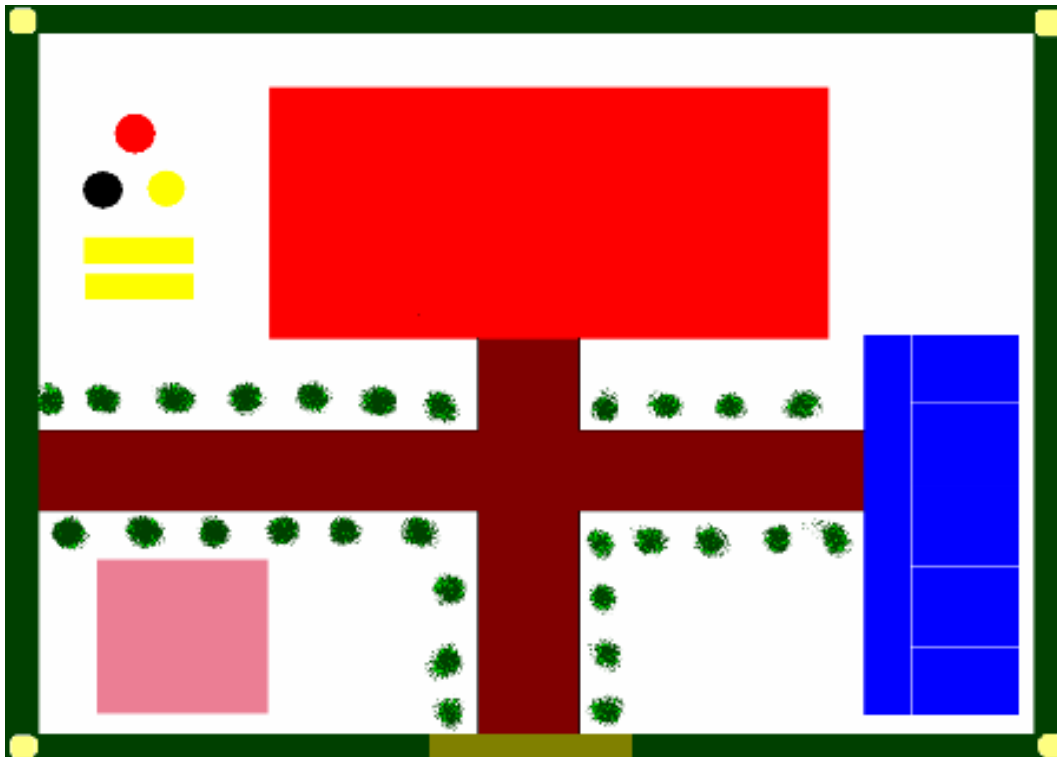
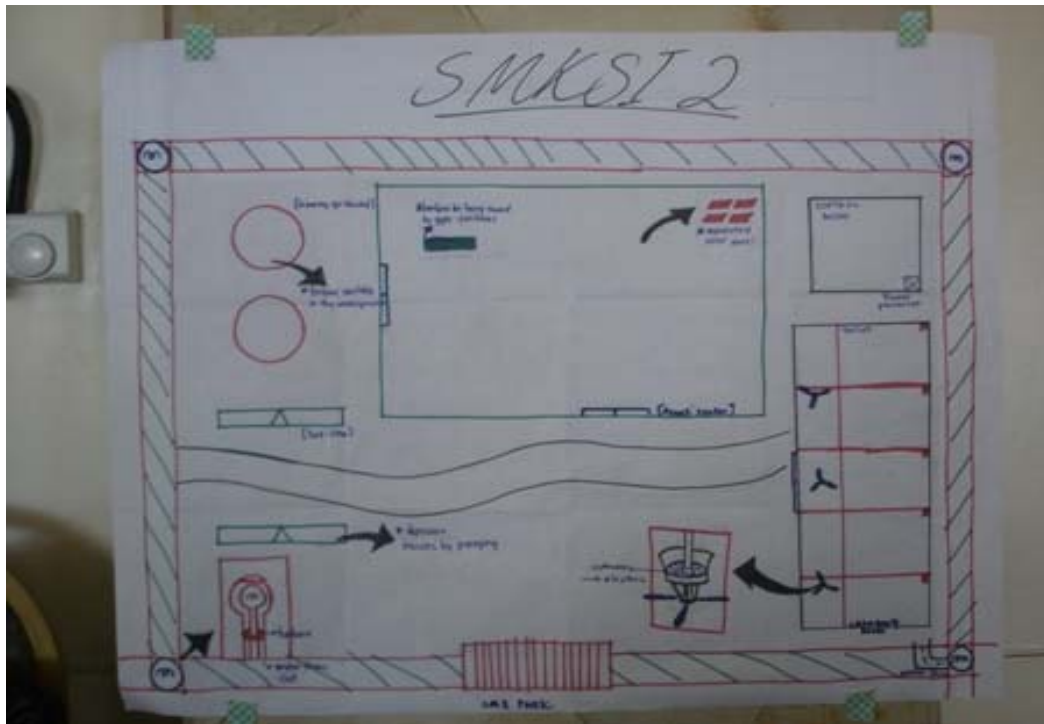
Firstly, we were introduced with the Micro World and Go Go programs. Then, we went to the Kenyan Dam and turtle sanctuary. At the Kenyir Dam, we were exposed on how the hydro dam works. There are also video presentations from Kenyir Dam's officer. Then, we were brought to the control room where they control the movement of dam. At the turtle sanctuary, we were having fun in cleaning up the area of the aquarium.

We were given a task in building a building which depends on climate and energy change. We discuss in a group of six how to build the SI2 HEAVEN. After a few discussions with the facilitators, we came out with an idea of a park which consist a gymnasium, a public toilet and a

control room. We started by designing and drawing the model of SI2 HEAVEN. In designing this model, we used a lot of recycle materials such as, cardboard and stationeries provided by SEED.

To maximize the use of the alternative sources of energy, we decided to build the playground and the gymnasium that generate electricity by human power. We also built the solar panel on the top of the roof for the purpose of supplying the electricity energy to the house. This solar system is combined with the Go go Board Programmer.

DESIGN OF THE PARK



COLLECTION OF PICTURES IN
COMPLETING THE SI2 HEAVEN



GOGO PROGRAM FILE

GoGo Script

```
to test
  forever[
    ifelse sitOnBike
    [charge ifelse isDark [bypass][nobypass]]
    [ifelse isDark [discharge][charge] ]
  ]
end
```

```
]
end
```

```
to bypass
  c, thatway onfor 5
end
```

```
to nobypass
  c, thisway onfor 5
end
```

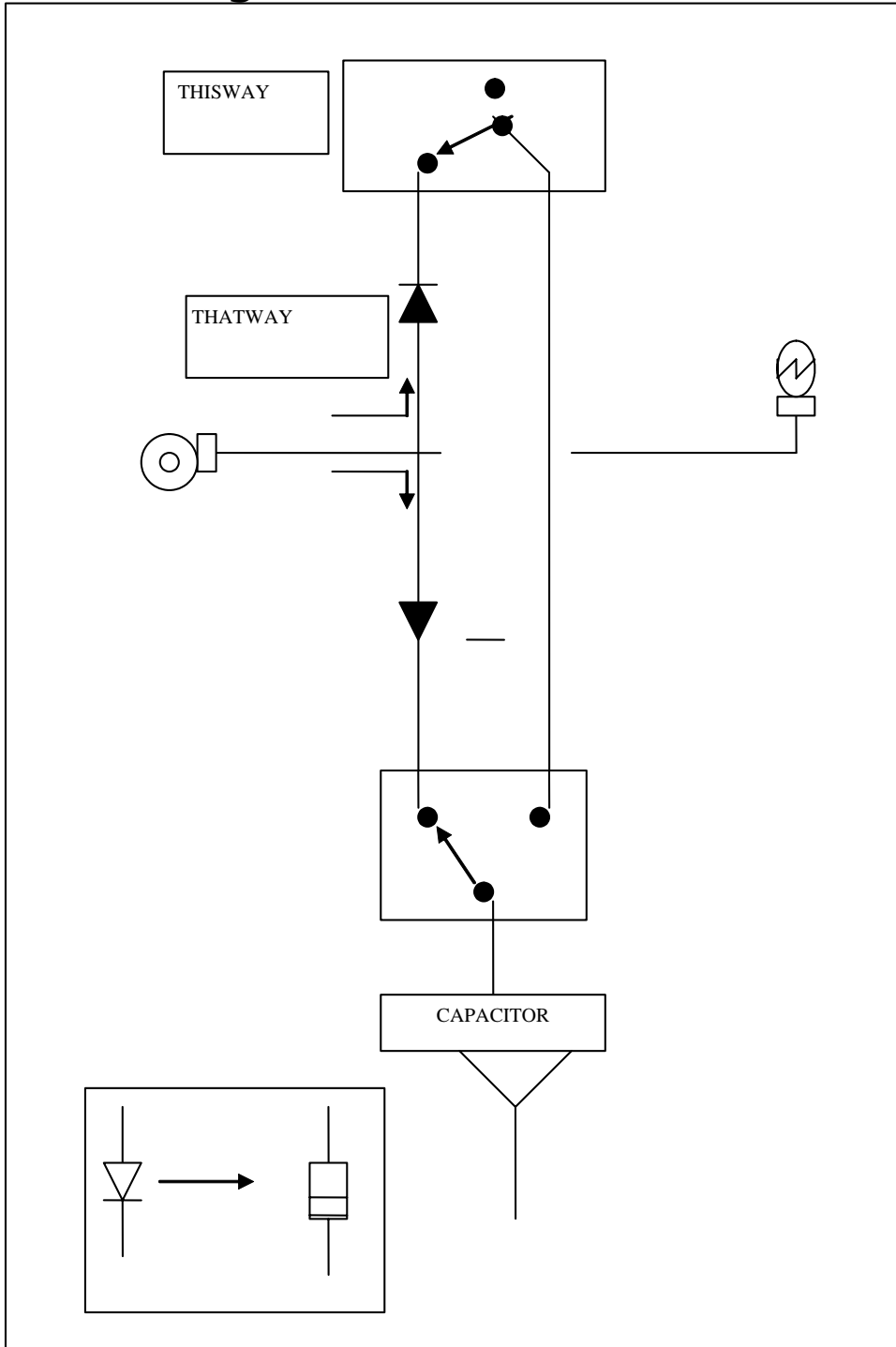
```
to charge
  a, thisway onfor 5
end
```

```
to discharge
  a, thatway onfor 5
end
```

```
to sitOnBike
  output sensor1 < 100
end
```

```
to isDark
  output sensor4 > 400
end
```

Circuit Diagram



Sensors function

The energy used is maximized when sensors are incorporated in many parts of the house. Among the sensors used for the house is the touch, and light sensors. These sensors are incorporated in many parts of the house.

a) Light sensor

The sensor is programmed to detect the sunlight inside the house. If the sunlight becomes dim so lamp will switch on automatically

b) Touch sensor

The sensor is programmed to detect the movement of people if they walk through the doors. If they step onto the touch sensor, it will automatically open.

CONCLUSION

Nowadays, the amount of fuel energy is decreasing day by day. So we must use the renewable sources of energy now for example solar energy. We hope that our next generation appreciate our environment and make use renewable energy.

~The End~