

SUSTAINABLE CAPSTONE PROJECTS (SCAP)

Solar air heater design and construction

GROUP MEMBERS

- **ABDIRAHMAN MOHAMED ENERGY SYSTEM.**
- **MOHAMED ALKATHIRI ENERGY SYSTEM.**
- **YASMINE LYAZGHI ENERGY SYSTEM.**
- **KIPETE LUTHOMO GRADHB MECHANICAL ENGINEERING.**

INTRODUCTION

The concept of the project is to show the solar air heater which gives off heat to the environment that we are staying in.

The main motivation behind the project, we reuse the material that we have, getting work as a team and feeling like we are working on a company project.

The benefits of this project

- *Learning how to use machines to make things*
- *Being more creative*
- *Working as a team*
- *Having an experience of making a project successfully*
- *Accomplishing a project in a specific time given*

FINAL PRODUCT

The final product is Solar Air Heater, it's working on the basis of Sun rays falling on the top of the glass placed on top of a wooden frame. Inside there is the metal sheet painted black which has the air channels below it which allows air through the holes at the bottom, so the air gets heated it becomes lighter and then it rises, there is a fan connected to the battery rotating the fan so that it takes the hotter air outside to the environment.

RESULTS AND DISCUSSION

The project seems to work and successful but we haven't tested it yet because of the weather also there's some heat loss due to that we were using materials that have been used so there were some faults on them especially on woods, we tried our best but we think there's still imperfections that may lead to heat loss.

We think this project could track more heat when we get good woods, enough silicone to glue the glass, also the black spray with high emissivity.

MATERIALS USED IN CONSTRUCTION

Re-Used/Recycled Materials:

- Woods
- Screws, Nails
- Transparent Glass
- Aluminum
- Ply woods

Other Materials:

- Black spray
- Silicon
- Patex
- White glue

CONCLUSIONS

From this project we had some negative aspects such as: managing time due to the courses and other classes, having a meeting team member was hard to meet all of us, not having all the materials in the same time and having a deadline to submit, hard transportation to get the materials from the workshop at a specific time and in other hand there's the positive aspects such as we learned how to work as a group, facing some problems in the project and managing how to solve it, working in a workshop for the first time. For us after joining the SCAP program we gained a self-confidence, being responsible, punctual, management of time, making friendship with other members and also with our supervisors.

REFERENCES

1. <https://youtu.be/WRAxpaYh6DA>

