SUSTAINABLE CAPSTONE PROJECTS (SCAP)
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Tiny House Completion, Testing Complet

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GROUP MEMBERS

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INTRODUCTION

What is the Motivate Program?

"The Motivate Project is about learning through hands-on experience. We want to build a tiny house from start to finish and test each part to make sure it works properly. It helps us apply what we learn in class to practice."
The main goal is to design, build, and test a tiny house and make sure it meets sustainability and functionality standards. The project promotes learning through hands-on engagement.
What benefits might this project provide?

"This project helped us learn teamwork and technical skills such as design and testing. It's also good for our resumes because we can show that we did something meaningful."

What is the Objective of the Project?
"Our goal is to build and test a tiny house that is both sustainable and functional. It's about learning new skills and understanding how to work together to achieve a big goal.

MATERIALS USED IN CONSTRUCTION

Re-Used/Recycled Materials:
- Power Supply wires
- Drying clothes rack
- LEDs
- Resistors
- Fans
- Wood tiles
- Screws
- Fans control switches
- Switches
- An unknown type of electric joint connection

Other Materials:
- Solar panel
- Controller of the solar panel
- Battery 12v 7.2Ah

FINAL PRODUCT

Tiny House Project Description: Completion and Testing

The Tiny House Project includes the entire process of designing, building, and testing a small, functional, and sustainable living space. The final section focuses on completing construction and making sure the house is ready for use through thorough testing.
1. Completion of the Tiny House
"We finished installing the windows, installing the insulation, and painting the walls. Now it looks like a real house, and we're ready to test everything!"
2. Testing the Tiny House
"Testing was fun! We checked the wiring with a multimeter, made sure the plumbing didn't leak, and even tested how well the house keeps warm. Everything worked great!"
3. Reflection and Learning
"Completing the tiny house taught me how to solve real problems. For example, we had to adjust the insulation because there were gaps. But in the end, everything turned out awesome!"
Now the house is complete and tested it's ready to be used! It feels amazing to see how all our hard work paid off.

Figure 1 Tiny house

RESULTS AND DISCUSSION

Results
Successful Completion:
"We built a fully functioning tiny house with working electricity and plumbing. The walls are insulated, and it looks amazing inside!"
Testing Outcomes:
"The tests went really well! The house held up during the load test, and we had no issues with the plumbing or electricity. It stayed warm inside during the thermal check."
Discussion
Successes:
"One big success was using solar panels to power the house. It's great to see how sustainability works in real life!"
Challenges:
"The hardest part was fixing the insulation gaps. It took longer than we expected, but we learned a lot about attention to detail."
Lessons Learned:
"We learned that testing as we built saved us from bigger problems later. Also, working as a team made the whole project fun!"
Future Improvements:
"Next time, we'd try using more recycled materials and plan extra time for delays. It would make the project even better."

CONCLUSIONS

The Tiny House Project showcased the practicality of combining sustainability with functionality. Successfully integrating solar panels and eco-friendly insulation proved the potential for sustainable construction in small-scale housing.

We gained valuable skills in wiring, insulation, and plumbing, while overcoming challenges like material delays and insulation gaps taught us the importance of attention to detail and adaptability. Through the SCAP program, we deepened our understanding of teamwork, project management, and sustainability.

This experience highlighted the value of planning, regular testing, and collaboration, providing insights that will shape our approach to future projects.

REFERENCES

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