

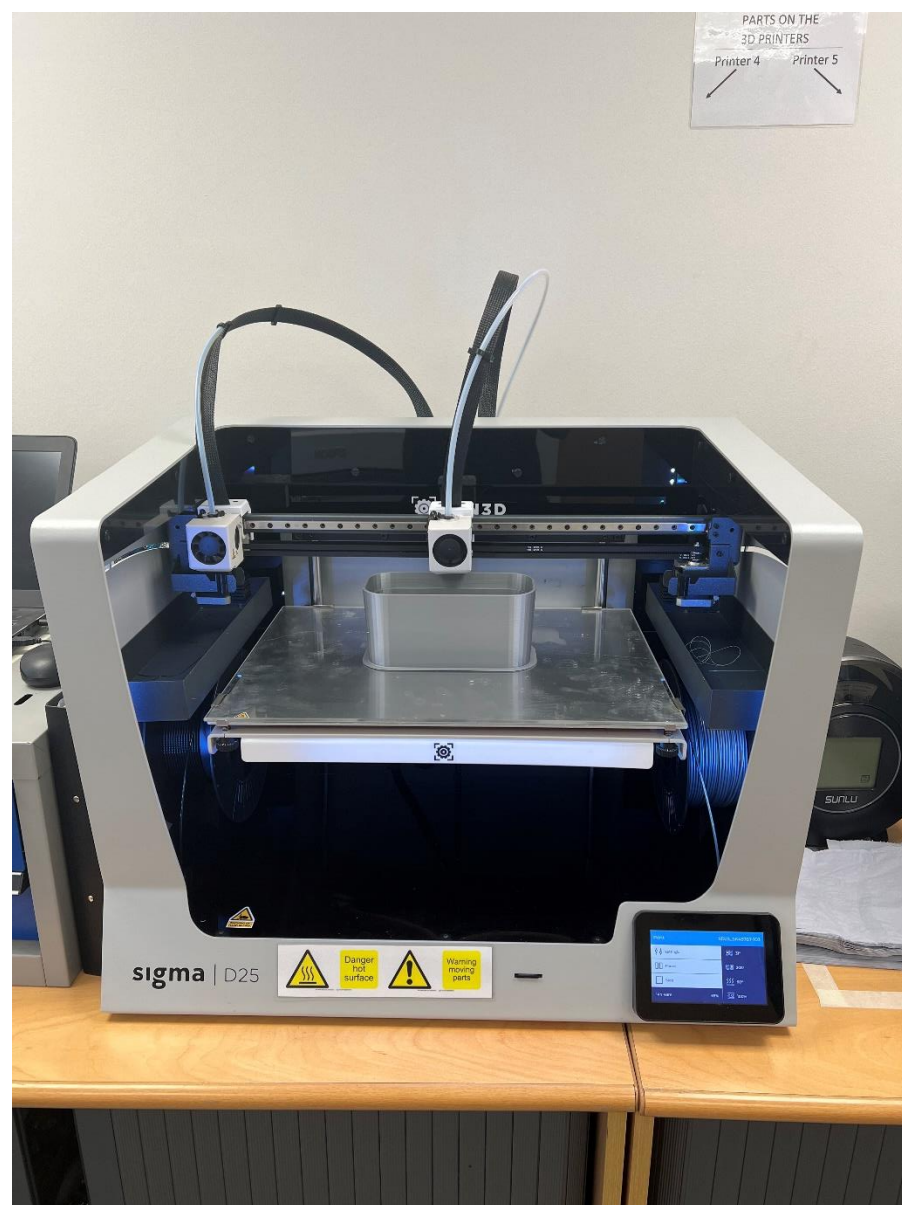
Autonomous PIC Controlled Screw Propelled Robot

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Introduction

Welcome to a glimpse into the future of robotics and mobility. This project introduces the innovative Screw Propelled Robot, designed to navigate and adapt to the most challenging terrains where traditional wheels and tracks fail.

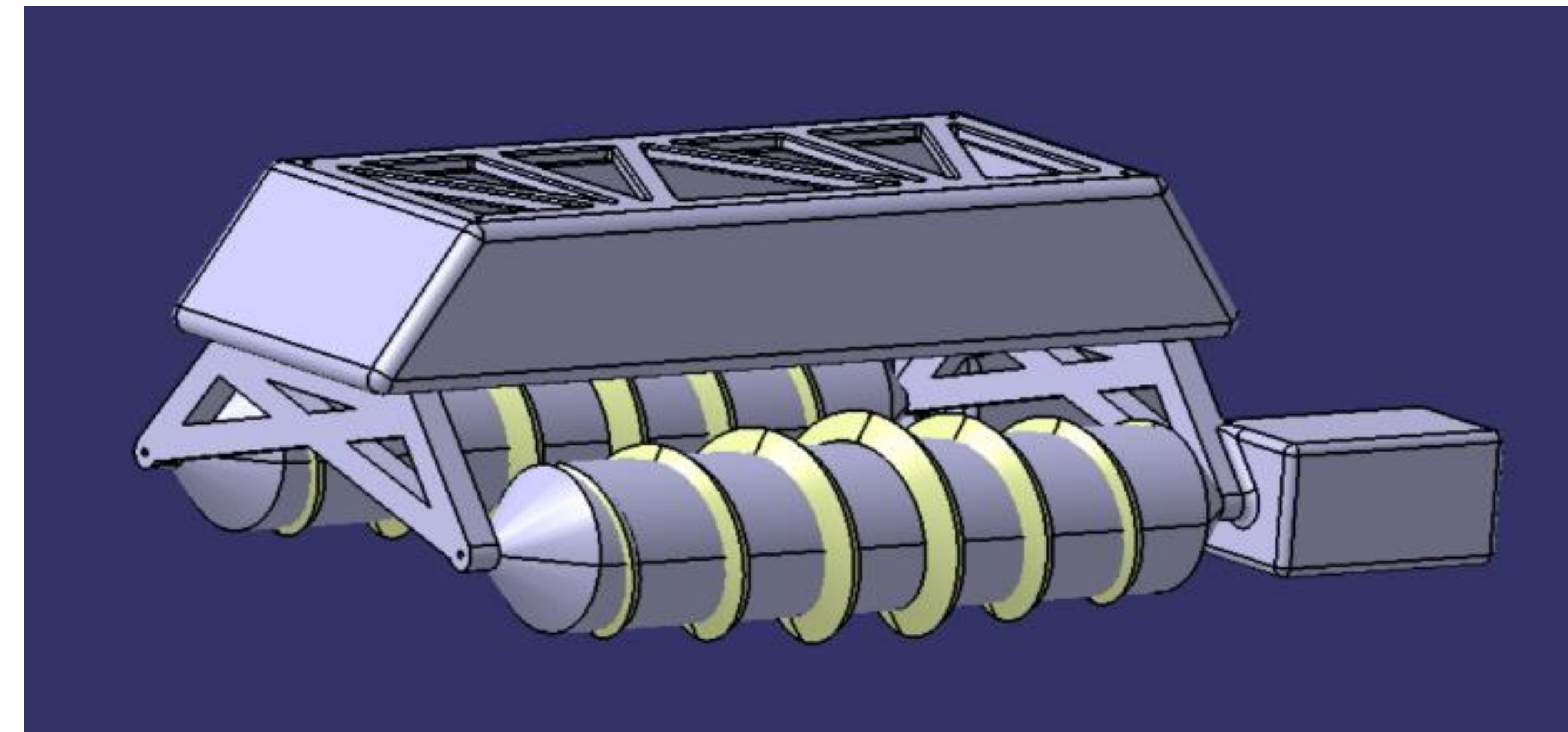
Materials and methods



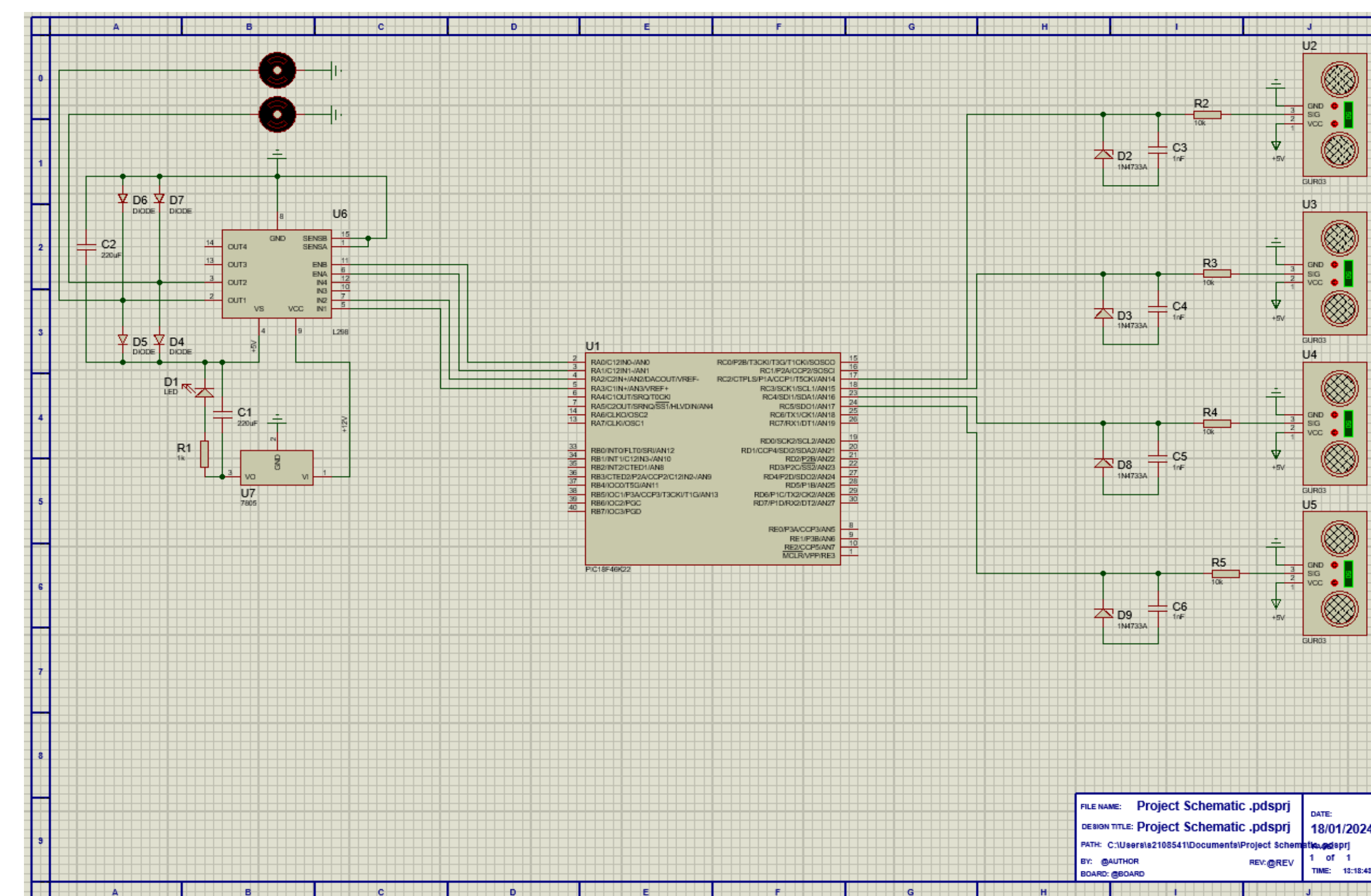
Body of robot manufactured via 3D printers using PLA material

Results

3D Model



Electric Architecture



Manufacturing

Robot manufacture using 3D print material PLA.

Manually soldered PCB boards for control circuit and motor drive circuit.

Programming

PIC programmed using MPLAB X IDE programming software in C language.

Application

Autonomous robot using ultrasonic sensors for obstacle detection. Screw propelled system allows for improved manoeuvrability over harsh terrain.

Conclusions

As we conclude our exploration of the Screw Propelled Robot, it is clear that this technology stands at the forefront of engineering innovation, offering new possibilities for navigating difficult terrains.

Looking ahead, we are excited about the potential for further enhancements, including increased automation, improved energy efficiency, and specialized adaptations for diverse environments. With continued research and development, the applications for screw propulsion technology are limitless, promising to revolutionize how we interact with, learn from, and protect our planet.

Literature cited

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“Elec Freak,” [Online]. Available: <https://cdn.sparkfun.com/datasheets/Sensors/Proximity/HCSR04.pdf>. [Accessed 22 March 2024].

Acknowledgments

Stephen Mosey – UWTSD Project Supervisor
SAFRAN Seats GB Design Department
SAFRAN Seats GB Industrialisation Department
SAFRAN Seats GB Certification Department

Further information

Proteus Design software
Catia v5 3D model software