



Introduction

The project aims to develop a new manufacturing process for the production of high-strength, lightweight components. This process involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

Methodology

The methodology involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

Background

The background of the project involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

Motivation and Objectives

The motivation for this project is to develop a new manufacturing process for the production of high-strength, lightweight components. The objectives of the project are to:

- Develop a new manufacturing process for the production of high-strength, lightweight components.
- Improve the strength and weight of the components.
- Reduce the cost of production.

INTRODUCTION

Research and development project at MIT that aims to develop engineering solutions for the efficient treatment of small quantities of low-level waste (LLW). The project involves the development of a multi-stage process to treat LLW, which is a significant challenge for the nuclear industry.

METHODOLOGY

The methodology involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

BACKGROUND

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MOTIVATION AND OBJECTIVES

The motivation for this project is to develop a new manufacturing process for the production of high-strength, lightweight components. The objectives of the project are to:

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TESTING AND VALIDATION

The testing and validation process involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

ACKNOWLEDGEMENTS

The project was supported by the MIT Office of Naval Research and the MIT Office of Additive Manufacturing.

Discussion

The discussion of the project involves the use of advanced materials and manufacturing techniques to create a high-strength, lightweight component that is suitable for use in a wide range of applications.

Geometry

- Joint reinforcement
- Hollow geometry
- Single piece internal
- Latch: Interphase (not used)

AM Materials

- New materials for
- Higher strength-to
- Lower cost

Coating Research

- Other metals: Empo

References

Wang, J., et al. "Additive Manufacturing of High-Strength, Lightweight Components." *Journal of Materials Processing Technology*, 2015.

1
00:00:20,220 --> 00:00:21,220
Music plays - People can be heard talking

2
00:00:21,220 --> 00:00:23,349
(Adrian Soler-Luna)
I'm Cuban, originally from Cuba.

3
00:00:23,349 --> 00:00:27,660
I'm studying at Wichita State University in
Wichita, Kansas.

4
00:00:27,660 --> 00:00:36,160
I'm an intern for the summer, working on
the nano-launch project, which is project

5
00:00:36,160 --> 00:00:39,910
which is trying to deliver small payloads
to

6
00:00:39,910 --> 00:00:42,120
space at a lower cost.

7
00:00:42,120 --> 00:00:43,120
It's been amazing.

8
00:00:43,120 --> 00:00:45,890
It's been very
interesting.

9
00:00:45,890 --> 00:00:49,460
Working here is awesome.

10
00:00:49,460 --> 00:00:50,850
Everybody looks so happy.

11
00:00:50,850 --> 00:00:55,909
Everybody is so helpful.

12

00:00:55,909 --> 00:01:03,820

Everybody is motivated and it's been an awesome summer.

13

00:01:03,820 --> 00:01:21,979

(Paige Green)

I'm from Anchorage Alaska.

14

00:01:21,979 --> 00:01:35,100

I'm a mechanical engineering student at Alabama A&M University and I'm a senior.

15

00:01:35,100 --> 00:01:36,950

I've worked with NASA in the past.

16

00:01:36,950 --> 00:01:40,070

I did two internships at Goddard Space Flight

17

00:01:40,070 --> 00:01:41,070

Center.

18

00:01:41,070 --> 00:01:45,710

It was with the NSTI program and I wanted to continue to search for

19

00:01:45,710 --> 00:01:49,659

opportunities for this summer so I went to the OSSI website and applied to as many

20

00:01:49,659 --> 00:01:50,659

as I could.

21

00:01:50,659 --> 00:01:52,530

It's been a great experience.

22

00:01:52,530 --> 00:01:55,850

I love the intern program that is at Marshall.

23

00:01:55,850 --> 00:02:00,170

All the activities they have for the interns,
the opportunities to connect with other

24

00:02:00,170 --> 00:02:01,170

interns.

25

00:02:01,170 --> 00:02:04,930

And I also enjoyed the mentors that
I worked with and the interns that I worked

26

00:02:04,930 --> 00:02:05,930

with.

27

00:02:05,930 --> 00:02:10,910

So, photo elasticity, it's a phenomenon
when you put a stress on a transparent

28

00:02:10,910 --> 00:02:11,910

part.

29

00:02:11,910 --> 00:02:18,280

It produces fringes because when you
shine a light through the material, it

30

00:02:18,280 --> 00:02:22,390

produces two components with different
directions and velocities.

31

00:02:22,390 --> 00:02:27,200

And the change in
velocity produces a relative retardation and

32

00:02:27,200 --> 00:02:29,210

that produces the color fringes.

33

00:02:29,210 --> 00:02:34,470

I've learned, working here, that you can
work on something for a long period of time

34

00:02:34,470 --> 00:02:38,810

and that it might not turn out the way you
want it to, so you need to think of other

35

00:02:38,810 --> 00:02:41,170

ideas to get a solution for your problem.

36

00:02:41,170 --> 00:02:44,010

It's
not always going to be one method to solve

37

00:02:44,010 --> 00:02:45,010

your problem.

38

00:02:45,010 --> 00:02:46,030

So, I learned that.