



Justin
Serving
Navy Project Engineer
Naval Air Station

ROBOTICS

NICK

Steve
2nd
Project Engineer
Operations, Robotics

UNDER ARMOUR

Master

1
00:00:00,506 --> 00:00:02,546
[Beeping Sound]

2
00:00:03,046 --> 00:00:06,926
>> PlanetVac is a novel
sample collection system used

3
00:00:07,086 --> 00:00:11,946
for pretty much any planetary
body, for a moon, for Mars;

4
00:00:12,046 --> 00:00:14,246
wherever you can imagine
we can use PlanetVac.

5
00:00:14,726 --> 00:00:18,446
What it does is kind of like
your vacuum, it creates an area

6
00:00:18,446 --> 00:00:20,696
of high pressure in the front,
uses an area of low pressure

7
00:00:20,696 --> 00:00:22,766
in the back to suck up sample.

8
00:00:23,296 --> 00:00:26,416
The best thing about
PlanetVac is how simple it is.

9
00:00:28,436 --> 00:00:32,556
So, what it's doing is it
fires pneumatics inside

10
00:00:32,560 --> 00:00:33,740
of a regolith.

11
00:00:34,880 --> 00:00:37,266
So, you might think like

out here in the desert,

12

00:00:37,266 --> 00:00:39,796

just kind of sandy
dirt kind of stuff.

13

00:00:39,986 --> 00:00:41,746

It could be on an asteroid,
it could be wherever,

14

00:00:42,046 --> 00:00:44,176

it's everywhere in the universe.

15

00:00:44,436 --> 00:00:46,866

So, we fire in there and
that's what we're collecting.

16

00:00:46,926 --> 00:00:49,436

So, we're not looking for, you
know, rocks, we're not drilling,

17

00:00:49,746 --> 00:00:51,936

we're collecting the stuff
that's off the surface.

18

00:00:52,020 --> 00:00:53,240

managing pressure

19

00:00:55,480 --> 00:00:56,080

>> Here we go.

20

00:00:56,606 --> 00:00:58,186

Masten ops to
all six second counting

21

00:00:58,186 --> 00:01:01,376

to start; six, five, four.

22

00:01:01,376 --> 00:01:04,976

>> Three, two, one.

23

00:01:05,516 --> 00:01:10,546

[Rocket Sounds]

24

00:01:11,046 --> 00:01:14,566

>> First the Masten rocket
lifts off, it translates

25

00:01:14,566 --> 00:01:17,436

over about a meter and lands
inside of our sample bin,

26

00:01:17,946 --> 00:01:19,526

which has our mars Mojave simulent in it.

27

00:01:23,046 --> 00:01:28,636

>> Alright, Honeybee
sampling in three, two, one.

28

00:01:28,976 --> 00:01:29,716

>> Firing.

29

00:01:29,936 --> 00:01:33,156

>> We remotely trigger
PlanetVac to collect sample,

30

00:01:33,156 --> 00:01:34,556

which lasts about 10 seconds.

31

00:01:34,966 --> 00:01:39,576

Then with an all-clear from
Masten we lift off again,

32

00:01:39,666 --> 00:01:41,336

translate back that one meter

33

00:01:41,336 --> 00:01:42,976

and land right back

where we started.

34

00:01:43,516 --> 00:02:00,686

[Rocket Sounds]

35

00:02:01,186 --> 00:02:03,636

So, The Flight Opportunities
program allowed us

36

00:02:03,746 --> 00:02:07,616

to take our PlanetVac
idea and actually strap it

37

00:02:07,616 --> 00:02:11,846

to Masten's rocket, putting
it in a situation where--

38

00:02:12,656 --> 00:02:15,856

that's more realistic
to what it might see

39

00:02:15,856 --> 00:02:18,886

in space really helps
raise the technology level

40

00:02:18,886 --> 00:02:19,966

and reduce risk.

41

00:02:19,966 --> 00:02:21,916

>> [Inaudible] at 320.

42

00:02:23,966 --> 00:02:22,996

>> 305.

43

00:02:24,566 --> 00:02:25,066

>> Oh!

44

00:02:25,246 --> 00:02:25,836

>> Oh guys.

45

00:02:25,836 --> 00:02:26,956

>> Yes.

>> We've got a lot.