
Demonstrator
NSBRI Investigator
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NSBRI
STEERING COUNCIL
ABOUT THE INDUSTRY FORUM
PURPOSE AND DUTIES OF THE INDUSTRY FORUM STEERING COUNCIL
SELECTED ACCOMPLISHMENTS

1
00:00:01,400 --> 00:00:03,569
>> So what we're trying
to do here is trying

2
00:00:03,569 --> 00:00:06,572
to develop a system that
could do brain imaging off

3
00:00:06,572 --> 00:00:09,308
of double A batteries
basically, a very lightweight,

4
00:00:09,308 --> 00:00:12,044
portable brain imaging so
that we could brain imaging

5
00:00:12,044 --> 00:00:14,914
out of the neuroimaging
center and put it into places

6
00:00:14,914 --> 00:00:19,752
like space or like
the front lines

7
00:00:19,752 --> 00:00:23,456
in the military settings
or so forth.

8
00:00:23,456 --> 00:00:27,726
So here we have -- our model
is wearing our device inside

9
00:00:27,726 --> 00:00:29,061
the cap.

10
00:00:29,061 --> 00:00:32,898
Take the cap off; as you can
see, the sensors are inside.

11

00:00:32,898 --> 00:00:37,002
We have the [inaudible] in there
and we have the sensor itself

12
00:00:37,002 --> 00:00:39,705
and that can go on easily.

13
00:00:41,107 --> 00:00:44,643
>> So this is the entire size
of an MRI boiled down into --

14
00:00:44,643 --> 00:00:47,346
>> This is to get -- yeah, get
similar measurements to MRI

15
00:00:47,346 --> 00:00:50,182
and so we're getting
blood volume

16
00:00:50,182 --> 00:00:52,384
and blood oxygenation
measures just like you would

17
00:00:52,384 --> 00:00:54,253
with a functional MRI scan.

18
00:00:54,253 --> 00:00:58,090
The device itself that collects
all the data is right here

19
00:00:58,090 --> 00:00:59,592
and we have a series of them

20
00:00:59,592 --> 00:01:02,695
that are progressively more
complicated that allows us

21
00:01:02,695 --> 00:01:05,364
to collect more auxiliary
information,

22
00:01:05,364 --> 00:01:08,701
more optical information
and that's compared

23
00:01:08,701 --> 00:01:11,003
to the big devices
that I have down here

24
00:01:11,003 --> 00:01:13,639
that are the full size
laboratory devices.

25
00:01:13,639 --> 00:01:16,175
That one's an imager
at 150 pounds

26
00:01:16,175 --> 00:01:17,877
and is not something you're
going to strap to your back

27
00:01:17,877 --> 00:01:21,480
and walk around with,
whereas this one is designed

28
00:01:21,480 --> 00:01:23,682
to achieve that goal.

29
00:01:23,682 --> 00:01:26,018
>> So talk about -- first of
all, what are the benefits

30
00:01:26,018 --> 00:01:29,321
of this [inaudible] astronauts
of all we know about flying

31
00:01:29,321 --> 00:01:33,993
in space for a long
period of time [inaudible].

32
00:01:33,993 --> 00:01:36,028
>> Yeah, smaller is
always good and later

33
00:01:36,028 --> 00:01:38,631
and less power requirements
and so forth are always good

34
00:01:38,631 --> 00:01:40,699
but for spaceflight,
they're concerned

35
00:01:40,699 --> 00:01:43,302
about intracranial
pressure alterations

36
00:01:43,302 --> 00:01:44,803
and there have been a
series of astronauts

37
00:01:44,803 --> 00:01:47,139
that have been diagnosed
with elevated pressures

38
00:01:47,139 --> 00:01:51,977
and this provides a way to
monitor brain health in space

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00:01:51,977 --> 00:01:55,381
which is clearly an
important aspect of that.

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00:01:55,381 --> 00:01:57,349
We would do it with MRI
or CT down here on earth

41
00:01:57,349 --> 00:02:00,085
but we can't take those
up there so instead,

42
00:02:00,085 --> 00:02:01,854
we can take something
like this up to do

43
00:02:01,854 --> 00:02:03,222
that sort of monitoring.

44
00:02:03,222 --> 00:02:05,558
On earth, this gives
us an ability

45
00:02:05,558 --> 00:02:08,961
to move more towards the
front lines, shall we say,

46
00:02:08,961 --> 00:02:13,299
so first responders, in the
military and sporting events

47
00:02:13,299 --> 00:02:16,669
and to home monitoring
such as sleep apnea

48
00:02:16,669 --> 00:02:20,339
or [inaudible] dizziness, feel
like you're going to faint

49
00:02:20,339 --> 00:02:23,442
and also is relevant
to monitoring people

50
00:02:23,442 --> 00:02:26,745
who are very active like
children, autism or epilepsy.

51
00:02:26,745 --> 00:02:29,281
And so being able to
take this with you

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00:02:29,281 --> 00:02:31,250
as you go is a novel technology

53
00:02:31,250 --> 00:02:32,818
that we just haven't
had the ability

54
00:02:32,818 --> 00:02:35,221
to try these sorts
of things before.

55
00:02:35,221 --> 00:02:37,156
So we're excited to
get to that point

56
00:02:37,156 --> 00:02:41,026
where we can actually use it
for these novel applications.

57
00:02:41,026 --> 00:02:42,361
>> So is this [inaudible]?

58
00:02:42,361 --> 00:02:44,296
>> This has not flown yet,
no, we're developing a series

59
00:02:44,296 --> 00:02:46,765
of prototypes, point
and validating it

60
00:02:46,765 --> 00:02:48,400
for the various applications

61
00:02:48,400 --> 00:02:49,868
that NASA is particularly
interested

62
00:02:49,868 --> 00:02:51,837
in like the intracranial
pressure.

63
00:02:51,837 --> 00:02:53,906
>> Talk a bit about, you know,
[inaudible] work on something

64
00:02:53,906 --> 00:02:56,575
like this that you know is going
to fly on board the station

65
00:02:56,575 --> 00:02:59,078
and how important is
the station to this?

66
00:02:59,078 --> 00:03:01,380
>> It's very exciting to work
on it to be honest, you know,

67
00:03:01,380 --> 00:03:02,815
a lot of groups that
I have worked

68
00:03:02,815 --> 00:03:04,583
with in the past
[inaudible] most fun working

69
00:03:04,583 --> 00:03:07,386
with NASA just thinking
about this; contributing

70
00:03:07,386 --> 00:03:10,856
to the space program in
any sort of way, the --

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00:03:10,856 --> 00:03:13,058
right now, they have
essentially no real way

72
00:03:13,058 --> 00:03:16,161
of monitoring brain function
in spaceflight and this is sort

73
00:03:16,161 --> 00:03:18,864
of one of the few that
has potential in area

74
00:03:18,864 --> 00:03:24,637
so we're excited about that
and the goal is to develop it

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00:03:24,637 --> 00:03:29,008
for NASA but we see a number
of clear spinoffs on earth