



Synergy

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00:00:03,970 --> 00:00:11,990
we have a need at NASA for miniaturized
particle counting instruments or aerosol

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00:00:11,990 --> 00:00:19,460
instruments and we're looking to get
that technology development stimulated

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00:00:19,460 --> 00:00:24,140
to the point where we will have
something that we can use in Space

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00:00:24,140 --> 00:00:28,039
Flight
we have a partner in this challenge the

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00:00:28,039 --> 00:00:32,090
Robert Wood Johnson Foundation their
mission is to improve the health of

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00:00:32,090 --> 00:00:39,019
communities and so they want a particle
instrument that has a lot of the same

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00:00:39,019 --> 00:00:44,359
qualities that a spacecraft particle
instrument would have we are focusing on

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00:00:44,359 --> 00:00:50,539
building a much more robust culture of
health in America and that means working

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00:00:50,539 --> 00:00:55,789
with all kinds of different people and
partners we saw NASA as one of those

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00:00:55,789 --> 00:01:00,379
opportunities and it actually turned out
to be a pretty interesting fit with

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00:01:00,379 --> 00:01:06,140
their own interests in looking for
innovations that worked on space and on

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00:01:06,140 --> 00:01:12,920
the earth for the ISS it's like a can of
air that's been there for 17 years no

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00:01:12,920 --> 00:01:20,690
fresh air we need to have that small
robust maintenance-free instrument to

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00:01:20,690 --> 00:01:25,220
measure particles on the space station
and so we have that synergy between the

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00:01:25,220 --> 00:01:29,630
earth application and the space
application and that's combined in the

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00:01:29,630 --> 00:01:34,880
earth and space air prize we had 20
proposals come in and a panel of judges

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00:01:34,880 --> 00:01:39,980
including NASA and foundation members
down selected that two three

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00:01:39,980 --> 00:01:46,100
those three finalists were each given
\$50,000 to build a prototype based on

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00:01:46,100 --> 00:01:50,930
their proposal based on their technology
those three prototypes will be in our

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00:01:50,930 --> 00:01:56,900
test chamber together and we will go
through a series of challenges where

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00:01:56,900 --> 00:02:02,290
we're generating aerosols
in the chamber

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00:02:02,290 --> 00:02:07,040
some of the things we had to keep in
mind for sampling on the space station

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00:02:07,040 --> 00:02:12,739
are a little different for what we would
normally consider for a sampling here on

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00:02:12,739 --> 00:02:19,550
earth there is a growing interest in
understanding air quality at the

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00:02:19,550 --> 00:02:23,750
community level at a neighborhood level
at the level of a school and there

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00:02:23,750 --> 00:02:29,630
aren't a lot of great sensor devices out
there today that can do so in a broad

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00:02:29,630 --> 00:02:34,269
way in a cost-effective way I just
returned from the World Health

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00:02:34,269 --> 00:02:39,530
Organization first-ever air pollution
conference in Geneva and they're looking

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00:02:39,530 --> 00:02:45,260
at a lot of low cost or lower cost
sensor solutions as you know for the

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00:02:45,260 --> 00:02:50,830
third world or for less affluent
countries cost is a significant factor

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00:02:50,830 --> 00:02:56,380

but what they're struggling with is that there's a lot of low cost low quality

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00:02:56,380 --> 00:03:02,959

sensors so trying to identify low costs but high quality sensors which is really

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00:03:02,959 --> 00:03:08,150

what we're looking to do this challenge gives us the opportunity to have not

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00:03:08,150 --> 00:03:14,930

just evolutionary aerosol technology but revolutionary aerosol technology at our

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00:03:14,930 --> 00:03:21,170

disposal at NASA there's new things that we can't buy that are being developed in

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00:03:21,170 --> 00:03:26,120

this challenge our end goal is really to advance technology

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00:03:26,120 --> 00:03:32,030

for area monitoring and personal monitoring so that we can understand

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00:03:32,030 --> 00:03:37,310

more about people's exposures to aerosols and really make it possible to

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00:03:37,310 --> 00:03:40,880

create a healthier environment for people on the space station and here on

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00:03:40,880 --> 00:03:46,940

earth we designed a new aerosol technology that can basically measure

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00:03:46,940 --> 00:03:53,450

both particle and aerosol mass size distributions but also gives you kind of

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00:03:53,450 --> 00:03:57,530

the optical properties of aerosols this is incredibly important because what we

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00:03:57,530 --> 00:04:01,370

can do is we could take this data and really get a really deep understanding

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00:04:01,370 --> 00:04:06,980

of ambient air quality so with our device we built it in a way so that it

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00:04:06,980 --> 00:04:11,209

can be scalable and deployed across large networks and then you can take

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00:04:11,209 --> 00:04:14,950

this data and actually start understanding the sources and

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00:04:14,950 --> 00:04:20,700

position of different types of aerosols to me what's really exciting is just the

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00:04:20,700 --> 00:04:25,419

fundamental underlying challenge of air pollution and I think that it's great

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00:04:25,419 --> 00:04:31,479

that NASA and the Robert Wood Johnson Foundation have teamed up to help find

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00:04:31,479 --> 00:04:38,229

solutions to solve that problem my hope is that one or more of the finalists

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00:04:38,229 --> 00:04:44,050
will be able to partner with NASA to do
technology demonstration on the

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00:04:44,050 --> 00:04:48,970
International Space Station with their
particle sensor the other thing I hope

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00:04:48,970 --> 00:04:53,620
is that there would be a smart city
application of one of these finalists or

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00:04:53,620 --> 00:04:58,960
more because there's all kinds of
pollutants that we need to monitor to

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00:04:58,960 --> 00:05:03,160
improve our awareness of our
surroundings the smart city application