



1  
00:00:05,880 --> 00:00:08,230

You know there's more space in your life than you think.

2  
00:00:08,230 --> 00:00:14,690

In fact in Washington, DC, two former Marines opened Compass Coffee, a local coffee shop

3  
00:00:14,690 --> 00:00:19,870

and roaster that uses NASA technology to brew the perfect cup of coffee.

4  
00:00:19,870 --> 00:00:24,110

It makes my life better when I drink a really good cup of coffee, and to know that NASA

5  
00:00:24,110 --> 00:00:28,300

technology was involved in making this cup and adding to it's quality.

6  
00:00:28,300 --> 00:00:30,090

I'm a happy camper.

7  
00:00:30,090 --> 00:00:35,520

PID, Proportional Integral Derivative is something NASA developed and really mastered the technology

8  
00:00:35,520 --> 00:00:41,890

of, we use it for consistency and precision in a couple different areas of the business;

9  
00:00:41,890 --> 00:00:48,250

Roasting make sure our time temperature profiles are the same for each roast and most fun in

10  
00:00:48,250 --> 00:00:49,430

the espresso.

11  
00:00:49,430 --> 00:00:55,960

We're looking at all the previous espresso shots, we kinda adding them all together to

12

00:00:55,960 --> 00:00:58,830

predict how the next shot will pull.

13

00:00:58,830 --> 00:01:05,140

And that makes sure it taste sweet like caramel and really good when we mix it.

14

00:01:05,140 --> 00:01:10,491

NASA engineers have researched Proportional Integral Derivative controllers or PIDs to

15

00:01:10,491 --> 00:01:13,429

design life support systems.

16

00:01:13,429 --> 00:01:19,299

Also in use for that perfect brew near-infrared abridged spectrometers, the same technology

17

00:01:19,299 --> 00:01:23,850

that NASA's Aqua satellite uses to collect information about Earth's water cycle and

18

00:01:23,850 --> 00:01:27,450

here we see that tech being used in a metropolitan small business.

19

00:01:27,450 --> 00:01:34,409

So we use a machine that uses a laser to measure the amount of quinic acid in the coffee.

20

00:01:34,409 --> 00:01:40,130

So quinic acid has a linear relationship with the degree of roast so as we're trying to

21

00:01:40,130 --> 00:01:45,899

figure out the recipes how do we make each blend the same every time we measuring those

22  
00:01:45,899 --> 00:01:50,729  
acids ever time with the lasers, constantly  
evaluating and tweaking the profile of every

23  
00:01:50,729 --> 00:01:51,729  
roast.

24  
00:01:51,729 --> 00:01:57,130  
From the PIDs used at Compass Coffee to the  
newly launched ISSpresso machine on the International

25  
00:01:57,130 --> 00:01:59,249  
Space Station.

26  
00:01:59,249 --> 00:02:03,890  
Which for the first time will allow hot liquids,  
like coffee and broth, to be available for

27  
00:02:03,890 --> 00:02:05,579  
astronauts to enjoy.

28  
00:02:05,579 --> 00:02:11,910  
We're small we're scrappy, we have to  
look for tiny advantages to get an edge, coffee

29  
00:02:11,910 --> 00:02:13,770  
is extremely competitive.

30  
00:02:13,770 --> 00:02:17,950  
So using this technology allows us to be more  
efficient to have a higher quality product

31  
00:02:17,950 --> 00:02:20,560  
and it really differentiates us from a large  
company.

32  
00:02:20,560 --> 00:02:23,660  
We're working off the Earth, for the Earth.

33  
00:02:23,660 --> 00:02:28,860  
With NASA technology and our small business  
programs helping people dream big as they

34  
00:02:28,860 --> 00:02:31,830  
benefit from our research in space.

35  
00:02:31,830 --> 00:02:36,130  
We live and die on small businesses, I think  
people have heard me say that before.

36  
00:02:36,130 --> 00:02:40,270  
We celebrate the relationship that NASA has  
with small businesses during this small business

37  
00:02:40,270 --> 00:02:41,390  
week.

38  
00:02:41,390 --> 00:02:47,170  
They are the engine of our economy that's  
where real jobs are made and that's what

39  
00:02:47,170 --> 00:02:49,600  
grows the middle class if you will.