1
00:00:07,800 --> 00:00:18,020
[music]

2
00:00:18,020 --> 00:00:21,630
Flying an F-16 isn't for the faint of heart.

3
00:00:21,630 --> 00:00:23,760
Especially during a flight test for the

4
00:00:23,760 --> 00:00:25,660
ACAT project at NASA's Dryden Flight

5
00:00:25,660 --> 00:00:26,780
Research Center.

6
00:00:27,360 --> 00:00:29,300
Automatic Collision Avoidance Technology

7
00:00:29,300 --> 00:00:31,220
has been a joint effort between NASA

8
00:00:31,220 --> 00:00:33,180
and the Air Force for 25 years.

9
00:00:33,180 --> 00:00:36,780
But, its implementation is just on the horizon.

10
00:00:37,540 --> 00:00:39,280
The technology uses a computer system

11
00:00:39,280 --> 00:00:41,500
designed to prevent planes from crashing.

12
00:00:41,680 --> 00:00:45,340
The ACAT project is developing a technology primarily

13
00:00:45,340 --> 00:00:48,300

intended to improve aviation safety

14
00:00:48,980 --> 00:00:50,940
The project that we just finished completing

15
00:00:50,950 --> 00:00:53,060
addresses ground collision avoidance,

16
00:00:53,060 --> 00:00:55,120
which is actually currently the major

17
00:00:55,120 --> 00:00:57,700
leading cause of fatalities in aviation.

18
00:00:57,700 --> 00:00:59,820
We are going to be going on to address

19
00:01:00,040 --> 00:01:00,980
air collision avoidance,

20
00:01:00,980 --> 00:01:02,880
which is the second leading cause.

21
00:01:03,200 --> 00:01:05,080
The technology can be applied

22
00:01:05,080 --> 00:01:07,180
to more than just aviation, as well.

23
00:01:07,620 --> 00:01:09,460
It could be applied to any sort of vehicle

24
00:01:09,600 --> 00:01:12,280
that has to avoid some sort of a collision threat.

25
00:01:13,040 --> 00:01:16,380
So, the potential in the future is quite large

26
00:01:16,920 --> 00:01:18,400
and we hope that we can expllore that.

27
00:01:19,220 --> 00:01:21,480
The last 15 years of research have been focused

28
00:01:21,520 --> 00:01:23,340
on refining the technology so that it

29
00:01:23,350 --> 00:01:25,480
doesn't interfere with missions involving

30
00:01:25,480 --> 00:01:27,360
required dangerous maneuvers.

31
00:01:28,120 --> 00:01:29,900
However, the system would still take over

32
00:01:29,900 --> 00:01:31,900
when the pilot is disoriented or unable

33
00:01:31,900 --> 00:01:33,520
to control the aircraft.

34
00:01:35,500 --> 00:01:37,740
During flight testing project pilots activate the

35
00:01:37,740 --> 00:01:39,480
computer system by performing different maneuvers.

36
00:01:40,960 --> 00:01:42,840
One of the cardinal rules in flight test

37
00:01:42,840 --> 00:01:45,020
is we never go beyond our own comfort level.

38
00:01:45,180 --> 00:01:47,660

We actually pad the system a little bit

39
00:01:47,720 --> 00:01:52,200
so it gives a fly up before the operational system would.

40
00:01:52,740 --> 00:01:54,640
while we're getting very close to the ground,

41
00:01:54,640 --> 00:01:57,120
we'd never go past our comfort level.

42
00:01:57,380 --> 00:01:59,040
However, there is that small margin

43
00:01:59,040 --> 00:02:01,360
where you're not past your comfort level

44
00:02:01,360 --> 00:02:03,080
but you're going right up to it

45
00:02:03,080 --> 00:02:05,290
which can be pretty stressful. Your hand is

46
00:02:05,290 --> 00:02:07,600
right on the stick right on the paddle switch.

47
00:02:07,600 --> 00:02:09,429
You're, you're kind of gearing up

48
00:02:09,429 --> 00:02:11,980
to speed up your reflexes because when

49
00:02:11,980 --> 00:02:14,290
the time comes to avoid the ground you

50
00:02:14,290 --> 00:02:16,480
have less than a second of reaction time

51
00:02:16,480 --> 00:02:17,300
to do that.

52
00:02:17,600 --> 00:02:21,200
Since ACAT was funded in 2007, five fatalities

53
00:02:21,200 --> 00:02:22,860
have resulted from accidents that could

54
00:02:22,860 --> 00:02:25,340
have been prevented had the software been in place.

55
00:02:27,380 --> 00:02:29,980
After 25 years of developing and testing

56
00:02:29,980 --> 00:02:31,780
it may seem that this technology

57
00:02:31,780 --> 00:02:32,980
is a long time coming.

58
00:02:33,500 --> 00:02:35,620
But, when his value is taken into consideration,