Crow Chaser

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A: Hello everyone, we are Honoka Yada,

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A: Today, we are going to present our plan to chase away crows using AI. We call this project "Crow Chaser".

B: AI is a word that you often hear these days. It stands for artificial intelligence and is a technology that reproduces human intelligence using computers.

C: AI is amazingly effective at learning rules and patterns from data.

A: The AI illustrations and predictions that are everywhere these days are generated using this learning. Like these, AI has infinite possibilities.

B: Look here. Someone or something destroyed this pear.

C: If you were a farmer, you would be hurt.

A: Do you know who did it?

B: The damage is caused by crows.

C: Crows are particularly clever and destroy many crops all around Japan, causing hundreds of millions of yen in damage every year! Nationwide, the cost was 400-million-yen last year alone.

A: Living in Tottori, we do not escape this harm.

B: Tottori is famous for agriculture and many fruits are grown here. There are pears, grapes, and watermelons to name but a few.

C: The producers here are suffering from crow attacks.

A: Some countermeasures against crows are to use speakers to play sounds or CDs to reflect sunlight to deter them. These methods are easy to install, easy to operate and inexpensive.

B: However, they have a disadvantage, their effects don't last long. These work immediately but within 10 days the crows will have figured out they are not harmful.

C: The second method is simply to catch them with traps.

A: However, a license or permit is required for this, and it takes time and effort.

B: Even if they are caught, they will be killed afterwards, which is mentally taxing on the farmers.

C: Currently, the most effective method is to cover the crops with a bird net.

A: Although this method has lasting effects, the drawback is, it takes time and effort.

B: Crows are smarter than other birds, so more complex strategies must be used to chase them away.

C: Therefore, we devised a new method combining drones and AI.

A: The advantage of this method is the cheaper cost, ease of install, and lasting effectiveness.

B: This is how it works. First, a fixed-point camera detects a crow.

C: Second, the take-off command is sent to the computer that controls the drone.

A: Then, the drone begins chasing the crows, analyzing images from its mounted camera.

B: The system needs a function to detect crows from camera images. We use AI machine learning for this.

C: There are two things to prepare. The first is a high-performance computer suitable for machine learning.

B: The second is many images of crows.

C: We make data of the crows as a teaching tool for the AI.

A: How does AI learn about crows?

B: This video shows how the AI does it. As you can see, the crows are framed and tagged.

C: By learning in this way, the drones will be able to detect crows. When this information is used with the drone, it automatically takes off and chases them away.

A: This equipment was what we used when conducting trial experiments.

B: The set-up is simple; a fixed-point camera, a wireless device for transmitting and receiving signals, and a battery for operating them.

C: We lured crows with bait to verify whether the camera and drone could chase them away.

B: Guess what? What do you think is the bait? It's cat food. Everybody, don't tell the crows.

A: Here it is in action. The square frames are crows the system could detect by itself.

B: Then the drone takes off, goes up and automatically chases the flying crows. The crows were on the run! It was a great success!

C: As a future improvement plan, we are considering equipping a water discharge function on the drone to enhance the ability to chase the crows away.

A: Additionally, we are considering adding solar panels to increase the duration of use and make them more environmentally friendly.

B: We approached our project from an agricultural perspective, but we believe this could also be effective for the livestock industry.

C: Preventing crows from entering barns also helps prevent infectious diseases such as bird flu.

A: Another example is a countermeasure against garbage in the city.

B: Crows litter household waste and by using this system, it may be possible to chase away those crows too.

C: By utilizing AI in this way, it will be possible to solve regional issues and environmental problems.

B: Thank you for listening!