City College of New York

Technical Description:

AirPod Pro

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Outline of Contents

Introduction:

AirPod Pros were first released to the public on October 30, 2019 (Price, 2019). The purpose of these AirPods are to listen to the audio of your iPhone, iPad or even Macbook device. You're able to answer calls, listen to music on Apple music or Spotify or even ask Siri for suggestions. This innovation is the third generation of the "AirPod series" as there were two generations for the regular AirPods that were released on December 13, 2016 (iGotOffer, 2019). This product costs about $250 without taxes included which is a higher price than the previous generations. According to Pound, "Apple could sell 85 million AirPods in 2020, generating about $15 billion in revenue". This comes to show how popular these headphones can become and the effect they can have for Apple.

Exterior:

Silicone Tips:

- The new AirPod Pros are different in design compared to the first two generations, as they come with three different size silicone tips that can give you the best fit and allow you to get the best possible sound, whether you're using noise cancelling or transparency mode. Hardwick states that there is a test called the Ear Tip Fit Test where it checks if the silicone tip you decide to use fits just right in your ear by measuring the sound level in the ear and what audio is coming from the speaker device. He also includes how to use the test using your Apple device in which you first connect the AirPods to the device you are using, then you go to the settings app and go to Bluetooth. After this, you would press

on the circled "i" icon next to the name associated with your AirPod Pros and then click on "Ear Tip Fit Test".
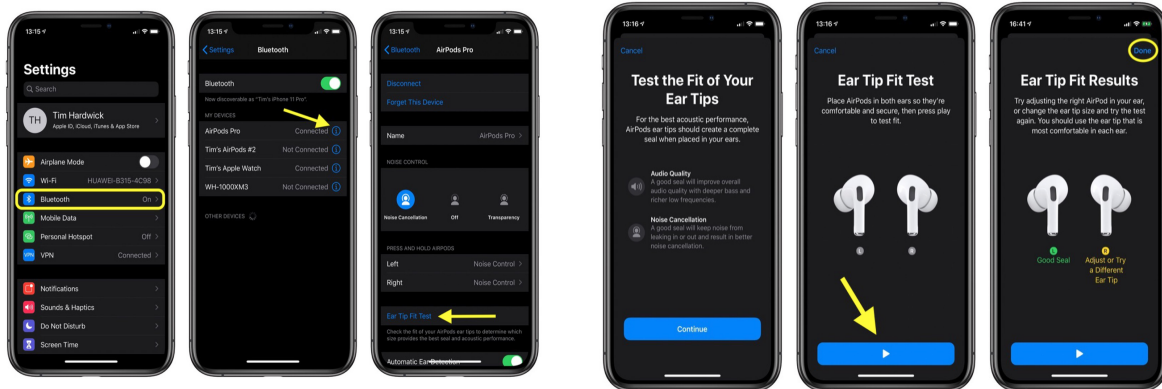

Figure 1: Image from "How to Perform an Ear Tip Fit Test on AirPods Pro" (Hardwick, 2019)

Charging Case:

- The new charging case comes in a new design, then the first two generations as they come in a 1.78 inches (45.2 mm) by 2.39 inches (60.6 mm), height by width, respectively with a depth of 0.85 inch (21.7 mm) and a weight of 1.61 ounces (Apple, n.d.). According to the article "AirPod Pros", the new case has "more than 24hrs of listening time with multiple additional charges in the case, up to 4.5hrs of listening time on one charge, around 1hr of listening time on only 5 minutes of charging" (Apple, n.d.). This new case allows you to not worry about having to charge your AirPods for a long period of time as they can last a great amount of time on little charging which also helps when you have to run errands like going to the grocery store and even going on a short run.

Interior:

Audio Technology:

- The noise cancelation and transparency mode are new features to the AirPod Pros that the older generation did not have. Noise cancelation eliminates almost all background sound for you while you have this mode enabled. The article "Apple Reveals New AirPods Pro, Available October 30" says that the headphones use two microphones while using advanced software in order to create noise cancelation. "The first microphone is outward-facing and detects external sound to analyze environmental noise. AirPods Pro then create an equivalent anti-noise that cancels out background noise before it reaches the listener's ear. A second inward-facing microphone listens toward the ear, and AirPods Pro cancel remaining noise detected by the microphone" (Apple Newsroom, 2019). Apple uses several different built-in technologies to successfully create headphones that blocks of sound coming from elsewhere. Apple reveals new AirPod Pros states "Transparency mode provides users with the option to simultaneously listen to music while still hearing the environment around them...Using the pressure-equalizing vent

system and advanced software that leaves just the right amount of noise cancellation active" (Apple NewsRoom, 2019). This is great for when you have to listen to instructions from a subway station or even a bus. Using this mode helps prevent having to use a very high volume on your device as it helps listen to your audio on a comfortable level.

Sensors:

- Dual beam forming microphones: Two microphones used to activate noise cancelling
- Inward-facing microphone: One of the dual beam forming microphones which listens towards the ear
- Dual optical sensors: Help detect when they're in users' ears. Removing them will pause the music.
- Motion-detecting accelerometer
- Speech-detecting accelerometer
- Force sensor : Built in on the stem of each earbud which does different functions
    - Press once to play, pause, or answer a phone call
    - Press twice to skip forward

Force sensor

    - Press three times to skip back

- Press and hold to switch between Active Noise Cancellation and Transparency mode

- Say "Hey Siri" to do things like play a song, make a call, or get directions

Conclusion:

In essence, AirPod Pros provide so many new features compared to the older version. They include noise cancelling, three new silicone tips, new design on the charging case and also new sensors. Being able to have noise cancelling can help many people as they can use them to get work done over a loud area. The main purpose of getting a pair remains the same which is to listen to the audio of your Apple devices whether its an iPhone or MacBook. Having the pros also lets you use them for a longer period of time even after a short charge. The release of the third generation headphones were less than two years ago but managed to make so much in revenue.

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