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Drone Usage in Sports

Nowadays we are trying to find ways to get the fan closer to the action than ever before in the sports industry. One way that is starting to come around is by using drones. Drones are being used in sports more and more nowadays whether it's to get the best aerial coverage of the sporting event you are watching, or new halftime shows that are being implemented in professional sports and the Olympics. Drones are starting to become more relevant for many different reasons. Aerial shots for commercials and documentaries, Super Bowl halftime shows, Security purposes, Filming team practices, and even cleaning and disinfecting stadiums. With this new demand for drones being implemented into sports, we will look at how they are making the experience better for the viewers what challenges they've run into.

The National Football League (NFL) was the first major American sports league who were permitted to fly drones according to the Federal Aviation Administration (FAA) back in 2014. There were only permitted to fly drones to film documentaries and practices. One of the main reasons the NFL petitioned the FAA to get permission to fly drones was to offer a safer and cheaper option for aerial shots to be implemented into their film documentaries than using a crewed aircraft to capture aerial shots. One of the first big usages of drones in professional sports was during the NFL Super Bowl 51 Halftime Show where Lady Gaga was performing and hundreds of drones lit up the sky behind her halftime performance. However, because of the FAA regulations drones are unable to fly within a 30+ mile radius of the stadium for public safety the drone show was pre-recorded before the Super Bowl. During the Super Bowl, 53 halftime show NFL partnered with Intel to create the first-ever live drone light show while Marron 5 performed their songs 150 enhanced Intel Shooting Star drones lit up the sky behind.

Drones are also being implemented in professional sports for security reasons. One of the big concerns about the NFL Super Bowl is security threats and one of the ways they are trying to battle that is by using drones to secure the perimeter. DJI Matrice 210 drones are fitted with optical zoom and thermal imaging cameras to make a 360-degree secure perimeter around the stadium. By using drones, they can monitor and control large crowds by just using drones in the sky. Drones are also being used in cleaning and disinfecting stadiums. As the Covid-19 pandemic hit, the Atlanta Falcons used drones that are equipped with special electrostatic spraying nozzles that allow the drone to evenly spread medical-grade disinfecting chemicals in the stands and throughout the stadium. Drones that are used for cleaning and disinfecting are very efficient in the cleaning process with them being up to 95% more time-efficient than using hired workers to walk around the stadium and disinfect.

Many professional teams and non-professional teams are starting to use drones for aerial coverage during their practices and training days. During NFL football games the coach is on the sidelines and the assistant coaches, offensive and defensive coordinators are sitting way up in the booth to look down on the field for a better view to call plays. With drones, it has a camera that captures what your team is doing from the sky to allow a better understanding of what your team is doing right and what your team is doing wrong. This technology allows sports teams to film their practices from a bird's eye view and adjust their play callings and have a better understanding of the science behind their calls.

Sports broadcasting is another way that is making drones stand out from the old traditional set cameras and even the innovation of the flyover camera which is hooked up on wires above the live sporting game. All though there is a lot of safety issues with drones in sports stadiums during live games. Companies are starting to come out with new safety features that will hopefully allow more showing of drones to be implemented in live broadcasting of sporting events within the near future. We have tried in the past to have drones capture live footage of sporting events and in one instance during the 2013 Spring Cup Series at Charlotte Motor Speedway, drones injured ten fans and damaged several Nascar cars on the track. Usage of drones during live performance sporting events must be approved by the FAA. A more

successful instance of drone usage in sporting events is when FOX Sports used drones at the U.S. Open which consisted of a four-man team and more than \$1 million budget to get the right equipment to capture live sporting event drone footage. Two-man teams for every drone were being used, one person was to fly the drone while the other was to control the camera. Two-man teams ensure the drone was not to crash and to make sure the viewers have the best footage with one man controlling the camera and one man always flying the drone. Even though out of the eighteen holes with over 100 cameras in the area to capture footage the four-man team was allowed hole number three to be filmed with drones. By allowing drones to start being a regular thing in sportspeople will become more comfortable with them and trained pilots and camera crews will have more practice to give the views the best broadcasting they can offer because of the freedom of a drone they can get every angle and get the fan a new and better viewing experience than ever before.

Overall, even though there are not many applications of live broadcasting with drone usage in sports the opportunities are there for the drone industry to make its way into the sports industry. Whether it be for the performance aspect at halftime shows, security purposes around stadiums, cleaning and disinfecting sports stadiums after the events. With the few live broadcasting usages with drones during the U.S open it made tremendous strides in how we fans view our favorite sporting events to watch while also giving us the best experience. That's why I think drone usage will give us that, but it will take some time before the safety features and the FAA allows that to happen.

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