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FPV Drone Racing Information

- FPV drone racing (where FPV stands for first-person view or first person video) is a sport type where participants control "drones" (typically small radio-controlled aircraft or quadcopters), equipped with cameras while wearing head-mounted displays showing the live stream camera feed from the drones. Similar to full size air racing the goal is to complete a set course as quickly as possible. Drone racing began as an amateur sport in Australia in late 2014.
- FPV (first person view) flying means that pilots only see what the drone sees. This is accomplished by live streaming footage from a camera mounted on the nose of the drone. The image is transmitted via radio waves (typically 2.4 GHz or 5.8 GHz frequency) to goggles or monitor worn by the pilot. The remote control, drone, and goggles are all connected via radio and must transmit with sufficient speed and reliability to allow effective control. This technology is very new and is constantly being improved. FPV goggles on the market range from \$50 to \$500, with the more expensive goggles offering more and better features. Some of these features include a wide field of view (FOV), receiver diversity, head tracking, multiple frequency settings, and DVR (digital video recorder) recording functionality.
- While the pilot always requires goggles, some drone racing organizations insist they should also be used among spectators alike by simply switching the frequency to the channel of the racer you want to watch. Any drone could be used to race, however competitive FPV racing leagues require drones to meet certain standards. The Drone Racing League (DRL) makes all of the drones used in its events in house; pilots are supplied with drones, backup drones, and parts by the league itself, not independently. DR1 Racing, utilizes an open spec class format that relies on each team in the series to supply their own drones, goggles and gear.
- MultiGP, defines community produced specifications and allows participants to supply their own drones increasing competitiveness and innovation. For competition, aircraft are typically separated into classes, separating winged craft from rotorcraft; and also categorizing by size and power.
- The DRL focus uses an indoor course, single-lap courses with many movie props, and LED illuminated shapes for obstacles. DR1 Racing's Champions Series is an outdoor racing circuit, flying in iconic locations around the world. Each location or race uses a mixture of environmental and manmade elements to create the course. The courses for the 2017 season include the Trona Pinnacles, the Mojave Boneyard at the Mojave Air and Space Port, the DHL Bonn Post Tower, Bunowen Castle in Ireland, Spike Island, and Isle of Man TT. DR1's Micro Series uses indoor locations, with thematic elements. Others such as the U.S. National Drone Racing Championship tend to conduct their races in open areas with less catastrophic obstacles (flags and cones vs. walls and tunnels). MultiGP provides community standards for their chapters to safely design their own courses and also generates individual pilot competition through their Universal Time Trial Track program which ranks pilots worldwide on standard measured courses.
- DRL is the only league so far that has established major outside sources of funding. DRL has raised more than \$30mm in venture capital backing from entities across the sports, technology and media space. Some notable investors include: Sky, Liberty Media (also owners of Formula 1), MGM, CAA, Hearst, WWE, Lux Capital, and RSE Ventures.[30] In addition, DRL has a number of high-profile sponsors, including Allianz, BMW, the US Air Force, and Swatch. It also has other lines of business, including a licensing deal with Toy State, a toy manufacturing company best

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known for their Nikko remote control car line. Finally, DRL has content licensing deals with networks around the world including ESPN and Disney XD in the United States, Sky Sports in the UK, OSN in the Middle East, and the Fox Sports in Asia. This funding has been crucial to the development of the league, and allows them to advertise and hold their races in better venues that will attract larger crowds. Other smaller and less established leagues have found it difficult to find funding. At events like the one held at the California State Fair, funding comes from the state and from ticket sales at the event. Along with the difficulties of finding funding, it creates problems of finding good venues that create a challenge for the pilots and also have key turns and straightaways adding to the exhilaration of these events. US Army veteran Brett Velicovich has been involved in the launch of drone racing at the Dew Tour. Outside of DRL, and DR1 which has Mountain Dew as a sponsor, most smaller events are sponsored by FPV manufacturers such as Fat Shark, ImmersionRC and HobbyKing[citation needed], DYS, T-Motor, EMAX, Team Black Sheep (TBS).



- →Minion 220 racing multirotor, with motors still warm and one propeller with one of its four blades missing after a long flying session.



- →Drone racing course outline



→ Average racing drone performance

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→ Drone racing course located in an aircraft

hanger



→ Drone racing course inside of a sports stadium



→ World's fastest racing drone "VXR190" @ 166MPH