RLP: Fully Automated Rocket Launch Pad (Including Mobile App Control, Weather Evaluation and Live Video)

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A rocket, of 2.9 m height, made of fiberglass and measures all weather data during its flight such as: particulate matter, temperature, air quality, humidity, altitude, acceleration, rotation and GPS data, using an also installed 4k camera. All data is transmitted to the ground station in real time. To get to this functionality, I have adapted a radio link-based WLAN network, which has a WLAN range of 21 km. The rocket is controlled fully autonomously with its launch station, a server, an external control unit and a self-developed app. The app is independent of the used operating system. The user first determines the required flight altitude of the rocket. In the next step, the corresponding flight parameters like water quantity and air pressure, needed for the flight, are calculated and after each physical flight adjusted and recalculated by the actual parameters of the flight. After the countdown has been completed, the rocket launches and starts with data transmission and all data can be viewed in real time. In order to locate the rocket after landing, the app uses a special GPS system delivering an accuracy of 10cm. The entire system was built upon a modular baseline, so that up to 5 million launch pads can be managed at the same time by means of an ID system I have developed for this purpose. This can be used to intelligently determine which way the data is to be routed, so that a CPU is never fully utilized.

Awards Won:

Fourth Award of $500

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