

# Development and Flight Testing of an Airborne based Remote Microscope

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## **Abstract:**

There is increased interest and research and deployment of various web-based platforms, tools, technologies, and remote systems. In PestPoint and PADIL for example, images can be shared both in real-time or by uploading snapshots to help assist agronomics and diagnostic experts irrespective of geographic location to analyze, interpret and share their views on any suspected biosecurity threat as a result of either pests or diseases. The more detailed and fine-tuned the image, including different photographic views, the better experts can make conclusive judgements based on these images. However, existing application of remote microscopy is generally limited to ground based. There are however instances due to different terrain or inaccessible areas where a sample may be needed. Thus, to facilitate the use of airborne remote microscopy this paper considers the system design and flight testing a wireless microscope on a UAV with a robotic manipulator which can be remotely manipulated to control the microscope. Results show the capabilities and limitations of the current system to detect stationary and moving targets as well as the capacity of the system to produce results with x100 magnification.

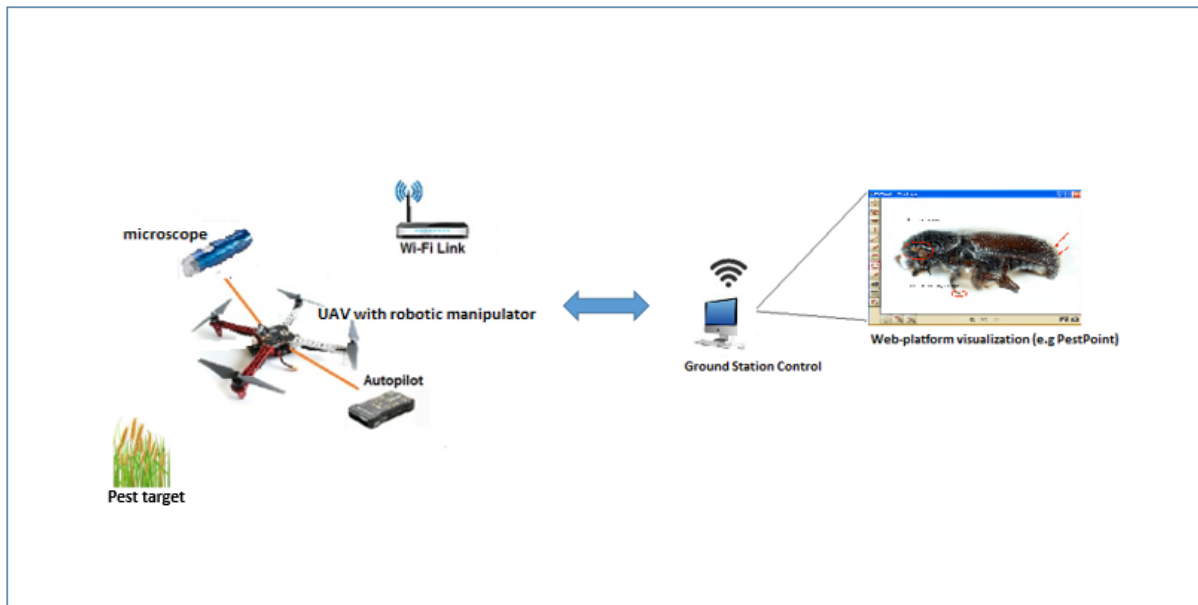


Figure 1. Concept of Operations

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