UAV-UGV-Human Autonomous Collaboration

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***Abstract*—While Unmanned Aerial Vehicles (UAVs) and Unmanned Ground Vehicles (UGVs) technologies continue to advance, develop, and gain popularity, they are held back by a variety of limitations. Most notably, drones are limited by their short battery supply, which prevents a user from prolonged usage on a single charge. On the contrary, UGVs, such as Turtlebots, can sustain battery life for longer periods of time, but may be limited in mobility due to obstacles such as a staircase.With our design, we hope to eliminate these limitations by allowing for UAVs and UGVs to collaborate in order to take advantage of each others strengths. One of our objectives is to create autonomy between the vehicles in order to create a hassle-free environment for the user. One approach to establishing this autonomy is creating communication through the usage of their on-board cameras and unique identifiers such as QR codes. This study was conducted in a closed, indoor environment using a Parrot Bebop 2 and a Turtlebot with their respective onboard cameras. In doing so, any excessive factors that may hinder the progress of the project, such as wind, observers, lack of a steady network, and "background noise", were eradicated.**

1. Introduction

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August 26, 2015

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2. Another Section

3. Conclusion

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Acknowledgments

The authors would like to thank...

References

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