

---

---

# UAV OBSTACLE COLLISION AVOIDANCE SYSTEM

*Subsystem integration for safer autonomous flights*

---

---

By

ÁLVARO MELGOSA PASCUAL



Department of Bioengineering and Aerospace Engineering  
UNIVERSIDAD CARLOS III DE MADRID

SEPTEMBER 2016



## ABSTRACT

Here goes the abstract



## DEDICATION AND ACKNOWLEDGEMENTS

**H**ere goes the dedication.



## TABLE OF CONTENTS

	Page
Abstract . . . . .	ii
Dedication and Acknowledgements . . . . .	iv
Table of Contents . . . . .	v
List of Figures . . . . .	vii
List of Tables . . . . .	ix
<b>1 Introduction</b>	<b>1</b>
<b>A Appendix A</b>	<b>3</b>
<b>Bibliography</b>	<b>5</b>





## LIST OF FIGURES

FIGURE	Page
--------	------



## LIST OF TABLES

TABLE	Page
-------	------



CHAPTER

1

## INTRODUCTION

Begins a chapter.



APPENDIX



## APPENDIX A

**B**egins an appendix





## BIBLIOGRAPHY

- [GS02] C. Grierson and J. Schiefelbein.  
*The Arabidopsis Book*.  
American Society of Plant Biologist, 2002.
- [JS06] M. Jones and N. Smirnov.  
Nuclear dynamics during the simultaneous and sustained tip growth of multiple root hairs arising from a single root epidermal cell.  
*J. of Exp. Bot.*, 57(15):4269–4275, 2006.
- [MS94] J. D. Masucci and J. W. Schiefelbein.  
The *rhb6* mutation of *arabidopsis thaliana* alters root-hair initiation through an auxin- and ethylene-associated process.  
*Plant. Physiol.*, 106:1335–1346, 1994.
- [PG09] R.J.H. Payne and C.S. Grierson.  
A theoretical model for rop localisation by auxin in *arabidopsis* root hair cells.  
*PLoS ONE*, 4(12):e8337. doi:10.1371/journal.pone.0008337, 2009.
- [RDH<sup>+</sup>01] S. Rigas, G. Debrosses, K. Haralampidis, F. Vicente-Angulo, K. A. Feldman, A. Grabov, L. Dolan, and P. Hatzopoulos.  
*Trh1* encodes a potassium transporter required for tip growth in *arabidopsis* root hairs.  
*The Plant Cell*, 13:139–151, 2001.

