



ELECTRIC AIRPLANE CONTROLLED WITH THE MOBILE APPLICATION

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by
Omar Hassan
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Graduation project written by

Omar Hassan

Graduation Committee

Prof. Dr. Sencer Yeralan

Prof. Dr. Izudin Džafić

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Omar Hassan

INTERNATIONAL UNIVERSITY OF SARAJEVO

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Abstract

Dedication

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List of Abbreviations

A	Ampere
Ah	Ampere-hour
BEC	Battery Eliminator Circuit
BLDC	Brushless DC
DC	Direct Current
ESC	Electronic Speed Controller
LED	Light Emitting Diode

S	Cells in series
V	Volt

Acknowledgements

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Part I

Introduction

Part II

Components

Photo	Name	Operating DC Voltage [V]	Current [A]	Description
	Active Buzzer	5	-	
	Antenna	-	-	
	Arduino Mega	5	0.1	
	Battery	11.1	100	LiPo, Turnigy, 3S, 5 Ah
	BME280 Sensor	5	-	
	Boost Converter	5-24	0.1	
	Capacitor	-	-	
	Charger	220 AC, 3.7	3x0.8	Balancing LiPo
	(current)			
	Diode	-	-	
	(dst dallas)			
	ESC	7.4-11.1	30	5 V BEC
	ESP Camera	3.3	0.1	
	Fan	5	0.1	
	(gps)			
	(gyro)			
	Inductor	-	-	
	IRF830 MOSFET	5	0.2	
	LED	3 (24)	0.02	
	LED Flash	12	0.2	
	Motor	0-11.1	10	Out-runner BLDC
	NodeMCU	3.3	0.1	
	Power Wire	400	50	
	Propeller	-	-	10x45
	Resistor	-	-	
	Servo Motor	5		
	(sismis)			
	Switch	400	40	
	Wire	400	5	
	XT60 Connector	400	100	

Part III

Construction

1 Hardware

1.1 Body

1.1.1 Chassis

1.1.2 Main Frame

1.1.3 Wings

1.1.4 Tail

1.1.5 Ailerons, Elevators and Rudder

1.1.6 Wheels

1.2 Power

1.2.1 Battery

1.2.2 Cables and Connectors

1.2.3 Electronic Speed Controller

1.2.4 5 V & 3.3 V Supplies

1.2.5 Charger

1.3 Motors

1.3.1 Main Power Motors

1.3.2 Servo Motors

1.4 Microcontrollers

1.4.1 NodeMCU

1.4.2 Arduino Mega

1.5 Sensors

1.5.1 Angle

1.5.2 Position

1.5.3 Voltage

1.5.4 Temperature

1.5.5 Pressure

1.5.6 Humidity

1.5.7 Distance

1.5.8 Current

1.5.9 Light

1.5.10 Camera

1.6 Communication

1.6.1 Serial

1.6.2 I²C

2 Software