



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY



Cairo University

ENHANCED UAV CONCEPTUAL SIZING METHOD FOR OPTIMUM DESIGN PARAMETERS SELECTION

By

Ahmad Sami Ahmad Ismail Al-Barawy

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
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MASTER OF SCIENCE
in
Aerospace Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

Prof. Dr. Mohamed Nader Aboulfotouh

Professor of Aircraft Structures
Aerospace Engineering
Faculty of Engineering, Cairo University

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Approved by the
Examining Committee

Prof. Dr. Mohamed Nader Aboulfotouh, Thesis Main Advisor

Prof. Dr. Atef Omar Sherif, Internal Examiner

Prof. Dr. Omar Alfarouq Abdul Hameed, External Examiner
- Professor at Military Technical College

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2020

Engineer's Name: Ahmad Sami Ahmad Ismail Al-Barawy
Date of Birth: 30/06/1992
Nationality: Egyptian
E-mail: ahmedsamielbarawy@hotmail.com
Phone: 01148992446
Address: Cairo, New Maadi.
Registration Date: 1/10/2016
Awarding Date:/....../2020
Degree: Master of Science
Department: Aerospace Engineering



Supervisors:
Prof. Mohamed Nader Aboulfotouh

Examiners:
Prof. Dr. Omar Alfarouq Abdul Hameed (External examiner)
- Professor at Military Technical College
Prof. Dr. Atef Omar Sherif (Internal examiner)
Prof. Dr. Mohamed Nader Aboulfotouh (Thesis main advisor)

Title of Thesis:

ENHANCED UAV CONCEPTUAL SIZING METHOD FOR OPTIMUM DESIGN
PARAMETERS SELECTION

Key Words:
Aircraft Design; Sizing; UAV; Weight Estimation; Matching Plot.

Summary:

This work aims at developing an enhanced conceptual design technique that uses available data to improve design parameters estimation and design point selection. The weight estimation is refined to get better estimate for take-off weight. The performance matching plot generation is based on the steady performance equations instead of empirical relations from regulations. Optimized performance criteria plots are added to the matching graph to help on the selection of the design. Finally, the wing and tail initial geometry are estimated using some guidelines for selecting the design parameters.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name: Ahmad Sami Ahmad Ismail Al-Barawy

Date: / /

Signature:

Dedication

This work is dedicated to my family, my dear professors and all my fellow partners on the road seeking the rise of our Ummah again.

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