Fast response MPPT switched charger for the Solar Boat Technician

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Introduction to the Research in

Electrical and Computer Engineering

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Abstract

Resumo do trabalho

Contents

Acronyms

IST   Instituto Superior Técnico

TSB   Técnico Solar Boat

MPPT   Maximum Power Point Tracker

MPP   Maximum Power Point

PCB   Printed Circuit Board

CAN   Controller Area Network

USB   Universal Serial Bus

GUI   Graphical User Interface

1

Introduction

Contents

1.1   Motivation

Explicar o contexto do TSB, paineis solares, sua falta de eficiencia, e MPPTs

1.2   background

de maneira a complementar o cap 1.1 vou explicar alguns conceitos basicos sobre paines solares, MPPTs e o projeto TSB

1.2.1   Solar Panels

1.2.2   MPPTs

1.2.3   TSB Project

1.3   Objectives

Explicar os objetivos do projeto com bulet points.

1.4   Outline

Explain how the work is organized by chapters.

2

State-of-the-Art

Contents

Intro if needed

2.1 mppt! algorithms

Escolher algumas para falar

2.1.1 Constant Voltage (CV)

2.1.2 Fractional Open Circuit Voltage (FOCV)

2.1.3 Fractional Short Circuit Current (FSCC)

2.1.4 Perturb and Observe (P&O)

2.1.5 Incremental Conductance (IncCond)

2.1.6 Method beta

2.1.7 Method based on temperature

2.2 MPPT converter topology

Intro..
Escolher algumas para falar

2.2.1 Buck Converters

2.2.2 Boost Converters

2.2.3 Buck-Boost Converters

2.2.4 Sepic Converters

2.2.5 Half-Bridge Converters

2.3 Comercial mppt!s

Table with comercial MPPTs and some of their carateristics.

2.4   Battery charging unit

2.5   Protection circuits

3

Solucion Proposal

Contents

3.1 Microntroller

Explicar a escolha do microcontrolador, o que ele faz, etc

3.2 Communication

sensors, CAN, USB, GUI

3.3 Current and Voltage Sensing

pq que é necessarion, e o que é que escolhi

3.4 Power electronics

Topologia escolhida, pq, vantagens e componentes

4

Preliminary Work

5

Planning and Scheduling

Fazer um planeamento com um gantt chart e explicar as decisoes

Bibliography

A

Appendix Name