BACHELOR PAPER

Term paper submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Engineering at the University of Applied Sciences Technikum Wien - Degree Program Biomedical Engineering

A smart title
Really smart title

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ICH BIN EIN TEST

Schlagworte: BOINSO

Abstract

I AM A TEST

Keywords: BOINSO

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I acknowledge this paper as a piece of bullcr*p

Contents

1 Introduction

The use of pico and micro satellites in the context of educational aerospace programs has introduced opportunities for both private enthusiasts and students in small scale cost efficient satellite endeavors. Mostly lacking central oversight and costly infrastructure around the globe the efficiency of those programs is depending on the collaborative efforts of a growing community sharing both hardware, computational infrastructure and time. Due to the characteristics of orbiters deployed in a Low Earth Orbit (LEO) a stationary observer can establish a direct line of sight only up to twelve times a day – as stated in [2] – which can be maintained for about fifteen minutes per pass.

The challenges posed by the difficult monitoring of small satellites orbiting in LEO and possible ways to overcome them were outlined in [1]. This bachelor paper focuses on the implementation of an accessible and easily modifiable solution to connect Mission Control Centers (MCCs) and give Ground Control Centers (GCCs) the opportunity to deliver viable contributions to the monitoring process.

Bibliography

[1] BEYERLE, G.: *An open source solution for distributed ground and mission control communication for low earth orbit satellites – A feasibility study*, 2014.

[2] KIEF, C., R. BUFFINGTON, N. PURUSHOTHAM, R. S. ERWIN, J. ANDROLEWICZ, J. LYKE and J. JACKSON: *GENSO, SPA, SDR and GNU Radio: The Pathway Ahead for Space Dial Tone*. Infotech@Aerospace, 2011, 2011.

List of Figures

List of Tables

List of Code

List of Abbreviations

API Application Programming Interface

GENSO Global Educational Network for Satellite Operations

BOINC Berkeley Open Infrastructure for Network Computing

LEO Low Earth Orbit

GEO Geostationary Orbit

GPL GNU General Public License

MCC Mission Control Center

GCC Ground Control Center

COTS Commercial off-the-shelf

ISEB International Space Education Board

CSA Canadian Space Agency

ESA European Space Agency

JAXA Japan Aerospace Exploration Agency

NASA National Aeronautics and Space Administration

CPU Central Processing Unit

GPU Graphics Processing Unit

PRC Public Resource Computing

TNC Terminal Node Controller

LTS Long Term Support

URL Uniform Resource Locator

CGI Common Gateway Interface

MPL-2.0 Mozilla Public License Version 2.0

NORAD North American Aerospace Defense Command

HamLib Ham Radio Control Libraries

TLE Two Line Elements