

Master's Thesis

Development of an Open Control Interface for a Servo Machine Test Stand

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Figure: Servo Drive Test Stand

Introduction

- ▶ Test stand bought in 2012
- ▶ Load handling demonstrations
- ▶ Restricted software
- ▶ Create new, open source control interface

Objectives

- ▶ Analyse components
- ▶ Analyse soft- and hardware capabilities and restrictions
- ▶ Develop a new, open source software
- ▶ Evaluate the possibility of simulation control

Implementation

- ▶ Analogue signals
- ▶ Digital controller
- ▶ Scalable values

$$x_o = \frac{x_i - LRV_i}{URV_i - LRV_i} \cdot (URV_o - LRV_o) + LRV_o$$

Example

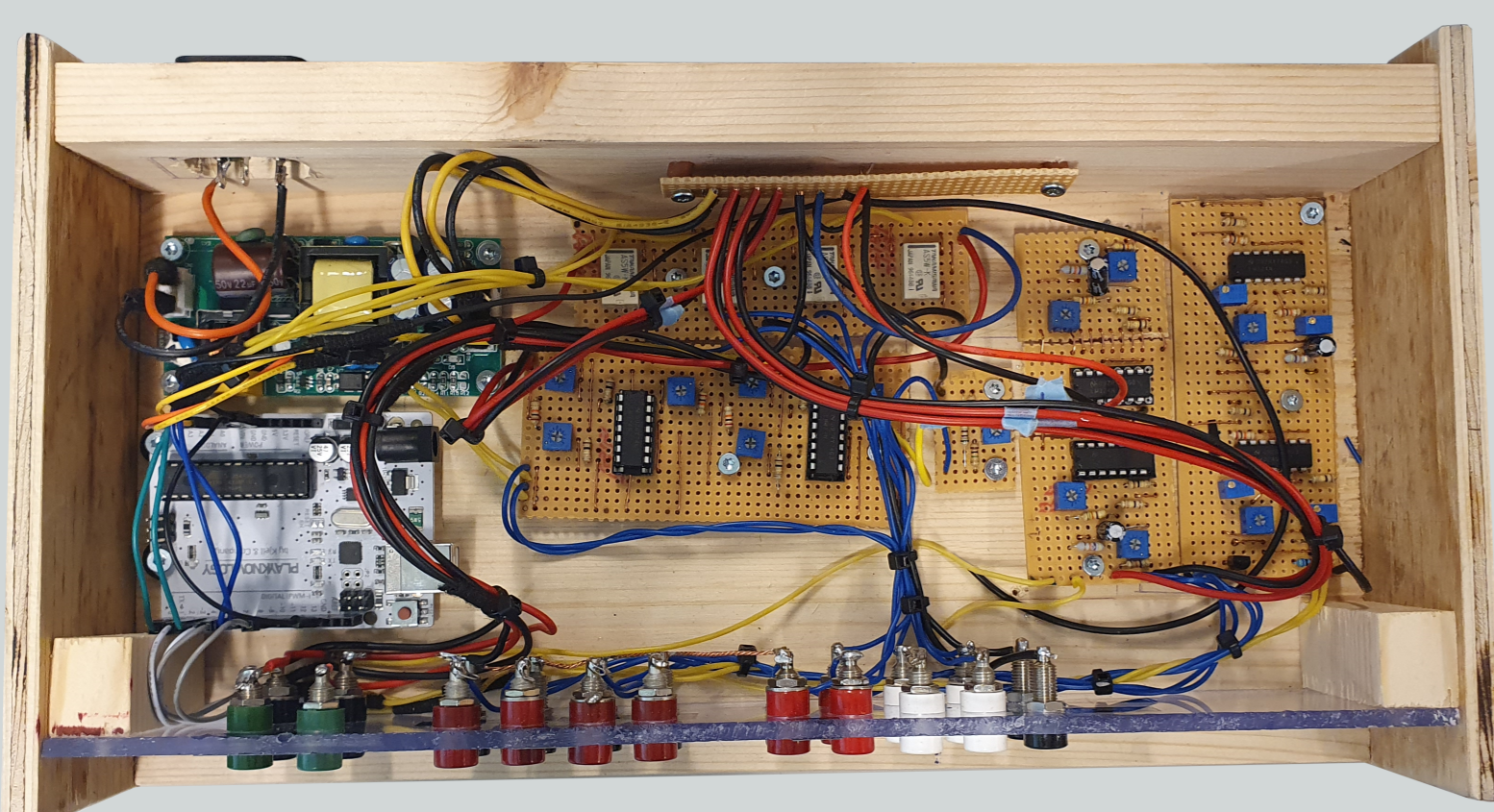


Figure: Arduino-based I/O module

Results

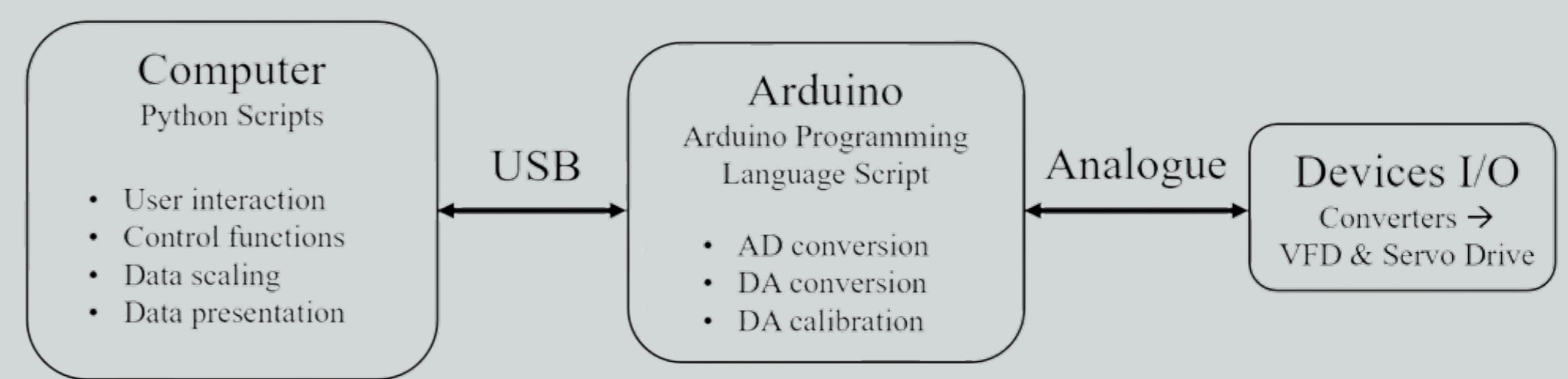


Figure: Signal Path

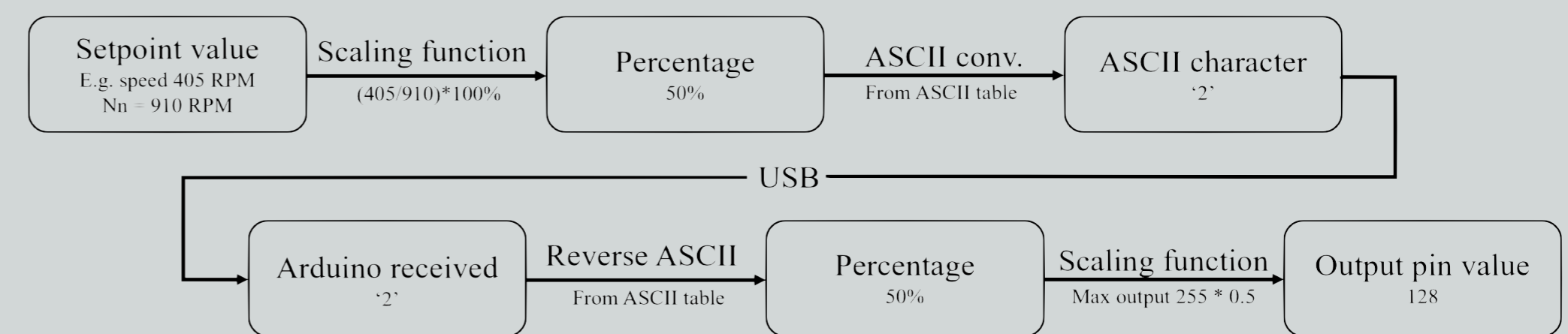


Figure: Value transferral

New Control System

- ▶ Analogue I/O control
- ▶ Microcontroller-based, but Python controllable
- ▶ Custom designed electronic amplifiers

System

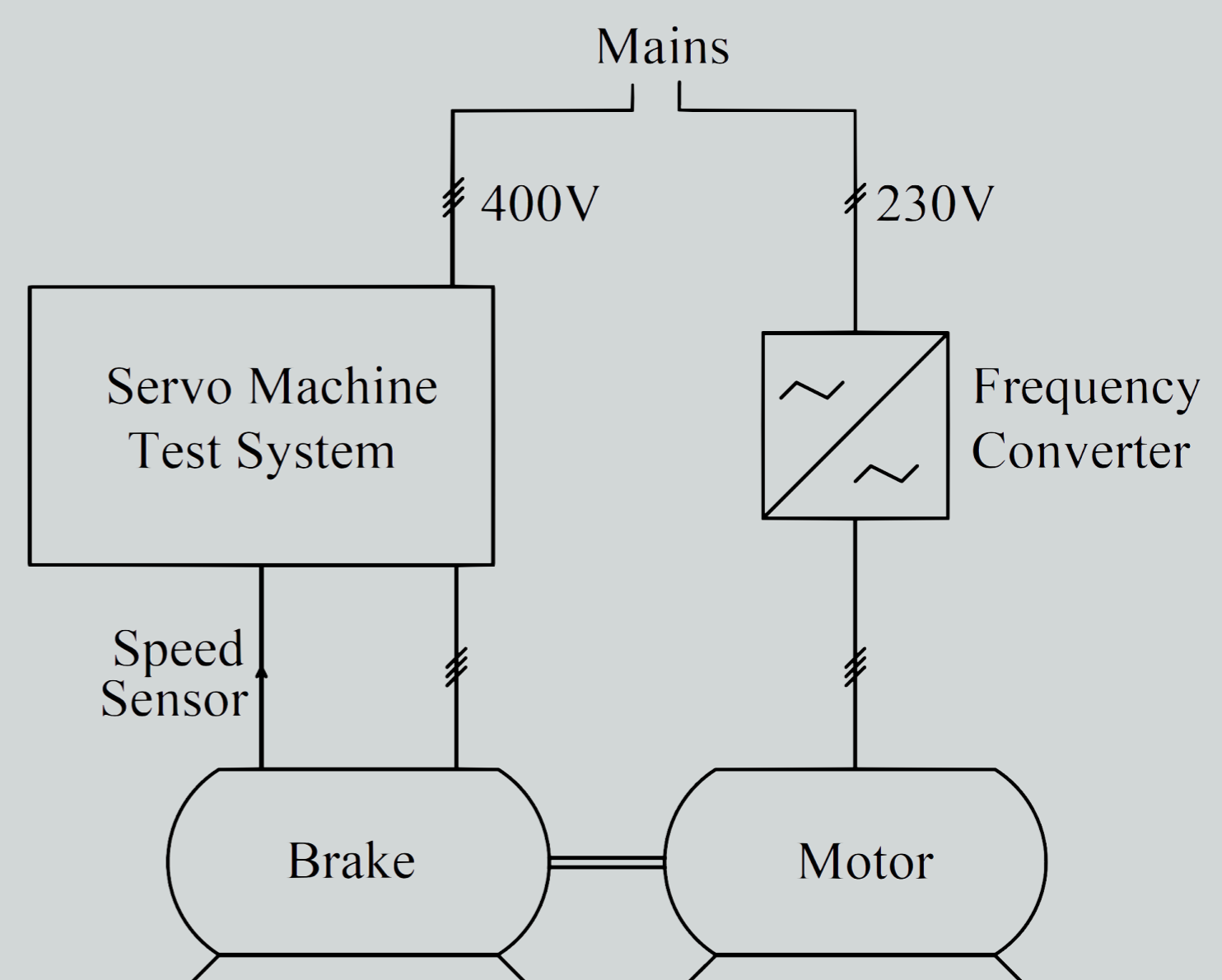


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