

Multitasking Scriptable Autotuning PID Platform

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1 Hardware

1.1 Definitions

All physical components, resulting from this project, will be called 'device' throughout the paper..

1.2 Goals

The device is intended as a learning project for the student, but also as a open software, open-hardware project, which anyone can create and use. Thus, the following hardware design priorities have been identified, in order of decreasing importance:

- safety – the device shall not cause a fire or electric shock to the end user
- reconstructability – the device shall be composed **only** of worldwide accessible components
- longevity – the device shall remain operational for 5 years of uninterrupted service with 95% confidence
- price – the BOM for the complete device shall not exceed 100BGN
- extendability – the number of input sensors and the number of output controllers, shall be trivially configurable
- ease of assembly – it shall be possible for a person with zero hardware experience to manufacture the device
- minimalism – each component shall fulfill a specific purpose, and the number of components shall be the lowest possible

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