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| http://4vector.com/i/free-vector-uppsala-universitet_061927_uppsala-universitet.png |
| Electron gun vacuum system control |
| Project in Embedded Systems |
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| **Simon Gollbo** |
| **2017-03-09** |

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# Abstract

Short summary of the project, communicating the most important results.

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# Introduction

## Background

Some background for the project

## Purpose of the project

The purpose of the project

## Project specifications

Specifications for the project

## Project planning

Planning for the work to be performed

# Working principles

How the touch screen works

How the microcontroller works

How the vacuum system + electron gun works

How the PID-controller works

# Implementation

## Overview of the system

Overview of the system

Touch screen

Microcontroller

MC to industrial grade electronics interface

PID-regulator

## Hardware and components

Microcontroller

PCB

Relays

Optocouplers

Touch screen

## Integrated Development Environment (IDE)

AtmelStudio

## Development tools

Sublime text

Git

USBasp programmer

AVRDUDESS

## Implementation

Present setups and source codes, discuss problems faced and how they were solved

# Results and discussion

Present the results with specific parameters and performance values associated with the specifications and discuss how well the results fulfill the specifications, what problems you encountered and how you found solutions and solved the problems.

# Conclusions

Conclude how well the project has been done and how well the system/project performs (in other words how well the finished system/project performs fulfill the specification). Summarize how the knowledge you’ve learned is applied to the project.

# References

References to code that was used as inspiration

# Appendix

Perhaps some code can be put here