BACHELOR PAPER

Thesis submitted in fulfillment of the requirements for the degree of Bachelor of Science in Engineering at the University of Applied Sciences Technikum Wien - Degree Program Electronics and Business Distance Study (BEW-DL)

Wireless Button for FABI

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Munich, 13.02.2025

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Abstract

**Schlagwörter:** Puck.js, Raspberry Pi Pico W, FABI, Assistive Technologies

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Acknowledgements

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# Introduction

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Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci.



Figure 1: Example of name and year printed on spine (Source).

Below there is a cross-reference to Table 1. The table format shown here serves as an example only. Tables may be formatted individually.

Tabelle 1: Schedule for “Applied Mathematics” (Quelle).

|  |  |  |
| --- | --- | --- |
| **Date** | **Subject** | **Room** |
| **20. 08. 2008** | Graph Theory | HS 3.13 |
| **01. 10. 2008** | Biomathematics | HS 1.05 |

This is a cross-reference to Equation (1):

|  |  |
| --- | --- |
|  | (1) |

Bibliography references should be automated especially when there is a long list of books. This is a sample reference to sources [1] and [2]. The style of citation and the Bibliography format used here is one of several possible ways, depending on the discipline and the functionality of the word processor.

# State of the Art

## Hardware

### Raspberry Pi Pico W

### Raspberry Pi Pico W 2

### Arduino Nano RP 2040 Connect

### Puck.js

## Software

### Earle Philhower Core

### BLE

### WIFI

# Requirements

## Required Hardware

## User Interface

## Connection of Puck.js

## Button Presses

# Design

### Hardware

### Software

# Implementation

## Raspberry Pico W

### Setup

### Wifi User Interface

### BLE

### Button Mapping

### Key Presses

### Main Loop

## Arduino Nano RP 2040 Connect

### Setup

### Wifi User Interface

### BLE

### Button Mapping

### Key Presses

### Main Loop

# Evaluation

## Test

## Limitations

# Results and Discussion

## Comparing the requirements

### Required Hardware

### User Interface

### Connection of Puck.js

### Button Presses

## Discussing Future Work

# Conclusion

Bibliography

[1] P. Scherz and S. Monk, “Practical electronics for inventors,” 2016, *McGraw-Hill*.

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List of Abbreviations

|  |  |
| --- | --- |
| WWW | World Wide Web |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Documentation table of AI-based tools

|  |  |  |
| --- | --- | --- |
| **AI-based tools** | **Intended use** | **Prompt, source, page, paragraph...** |
| **DeepL Translate** | Translation of an article in English | Source (XXX), Chapter X on page X-X |
| **ChatGPT (4.0)** | Grammar and spelling | "Please list issues with spelling and grammar in the following text: ..." Entire document |
|  |  |  |

Appendix A: Code for Puck.js

Appendix B: Code for Raspberry Pico W

Appendix C: Code for Arduino Nano RP 2040 Connect

Appendix D: Code for Puck.js (for the Connection with Arduino Nano RP2040 Connect)