ELEKTRONICA-ICT

Elektronische Systemen 2

Enhanced sound measurement using integration with Pedalshield

|  |  |
| --- | --- |
| *Authors* | *Michiel Partoens*  *Loïc Schillings* |

Content

# Introduction

This application note delves into the innovative fusion of sensors with the Arduino Pedalshield. The utilization of sensors for capturing sounds and vibrations, coupled with the signal-enhancing capabilities of the Pedalshield, provides us with new possibilities for real-time monitoring and analysis.

In this document, we explore the integration between sensor data acquisition and signal processing using the Arduino platform. Specifically, throughout this project, we aim to achieve three primary goals: the effective utilization of a sensor dedicated to capturing sound, the proper utilization of the Pedalshield for signal amplification and manipulation, and finally, the display of the enhanced and possibly modified signal on an OLED screen using the Arduino Due

# Hardware and software

Before we can discuss the project we need to explain the used hardware and software. This section contains the hardware and software used in the project and the research done to achieve the end result.

## Hardware

A variety of hardware components were used in this project. An Arduino Due was crucial for signal interpretation. The Pedalshield posed the greatest challenge; it connects to the pins of the Arduino Due and amplifies the signals from the sensors. Various sensors were tested and employed as input for the Pedalshield, enhancing its functionality. Additionally, a range of hardware plugs and cables were utilized to establish the required electrical connections,

* + 1. Research

Before commencing the project, thorough research was imperative. Initially, attention was directed towards the Arduino Due, followed by a comprehensive examination of the Pedalshield. Subsequently, the sensors were looked at. Finally, research was conducted to identify any additional required hardware components.

Used hardware is explained

## Software

Used software is explained

## Research

Research about the software and hardware

* + 1. Smaller Title

Text

## Small Title

Text

# Big Title

## Small Title

Text

### Smaller Title

Text

### Smaller Title

Text

* 1. Small Title

### Smaller Title

Text

### Smaller Title

Text

# Discussion

Text

# Reference list

Text