Laudio – Audio-Reactive Wearable LED Device

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Technical Summary

Laudio is a wearable electronic device that analyzes ambient sound in real time and controls dynamic light effects displayed through LEDs or LED strips integrated into a graphic pattern mounted on clothing.

The system uses FFT (Fast Fourier Transform) and signal dynamics detection to visualize amplitude, frequency spectrum, and beat recognition. The result is an audio-reactive light experience synchronized with music and ambient sound.

Application Variants

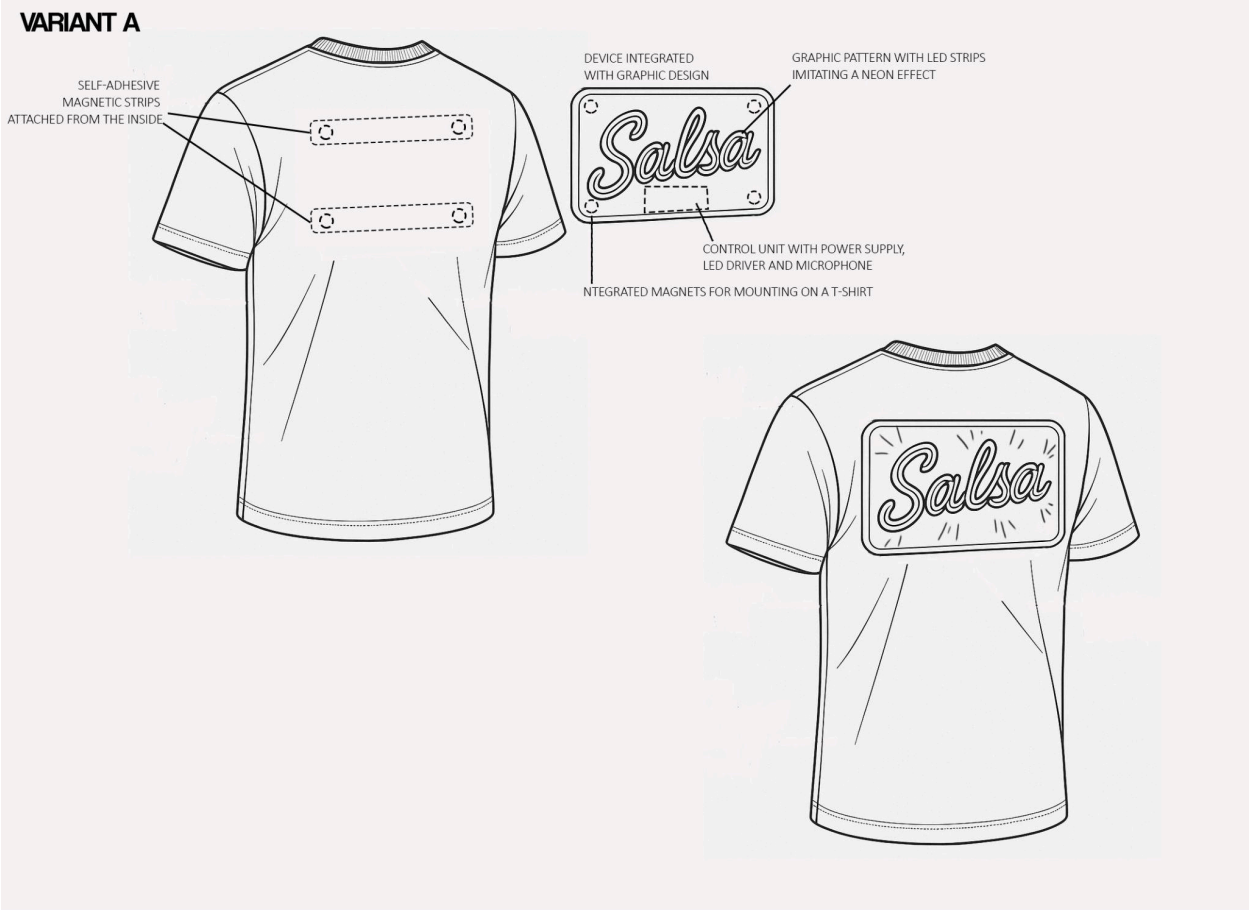
1. **Modular Variant (A):**
   The Laudio module, containing the microphone, control unit, battery, and LED driver, is magnetically attached to the outer side of a garment using adhesive magnetic strips placed inside the fabric. It can be easily removed or repositioned.

2. **Integrated Variant (B):**
   The Laudio system is built into the garment (e.g. jacket), with the control and power module placed in a side pocket, a microphone routed through a chest pocket opening, and the graphic LED pattern mounted on the back and connected by a cable hidden beneath the fabric.

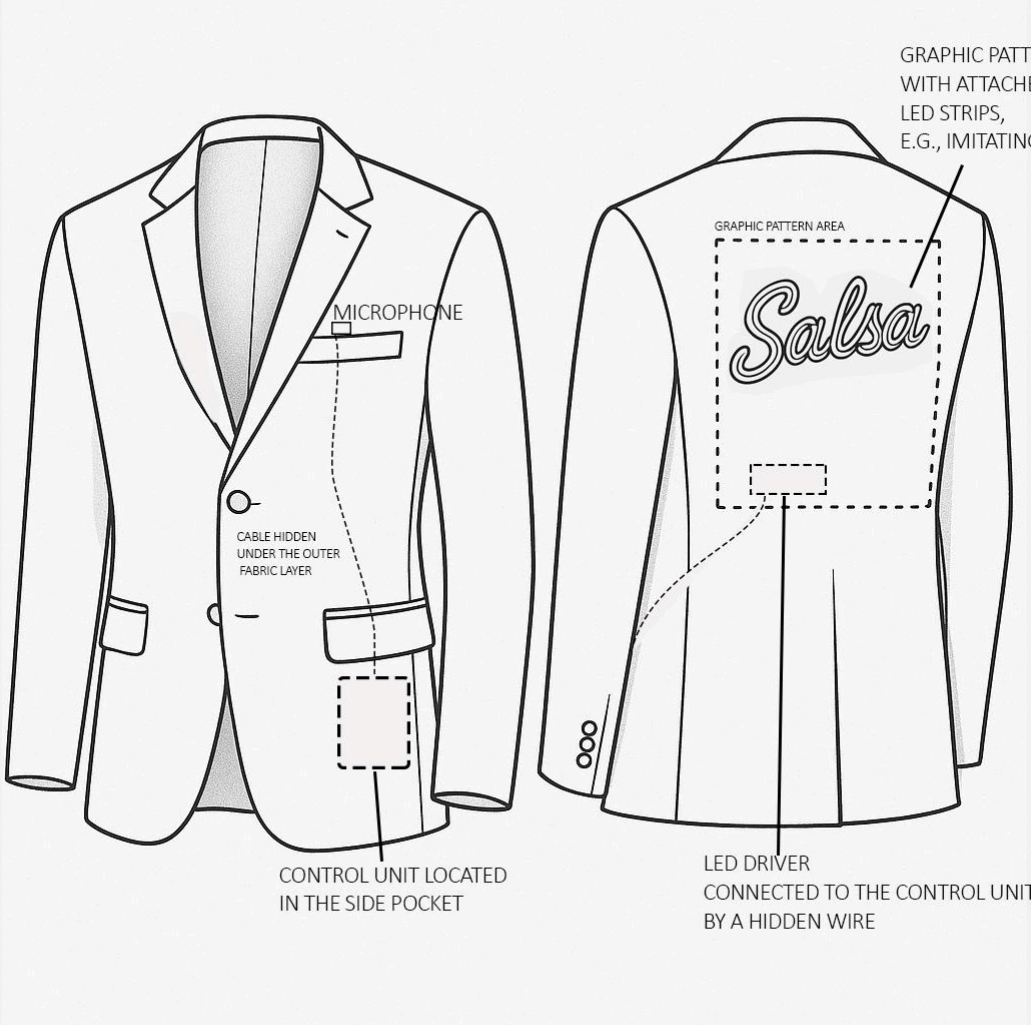
Additional Features

- OLED display showing selected effect, gain, and battery status.
- Configurable via physical buttons or Bluetooth Low Energy (BLE) mobile app.
- Built-in voltage monitoring to enter low-power mode below safe thresholds.

Figures



VARIANT B


GRAPHIC PATTERN
WITH ATTACHED
LED STRIPS,
E.G., IMITATING A NEON
GRAPHIC PATTERN AREA
Salsa
MICROPHONE
CABLE HIDDEN
UNDER THE OUTER
FABRIC LAYER
CONTROL UNIT LOCATED
IN THE SIDE POCKET
LED DRIVER
CONNECTED TO THE CONTROL UNIT
BY A HIDDEN WIRE

Legal Notice

This document was publicly published on **08.05.2025** at:

https://laudio.store/disclosure.pdf

It is intended as a formal timestamped **self-disclosure** of the concept, functionality, and technical realization of the Laudio system. Its purpose is to establish prior art and authorship under the Berne Convention (Article 10.1) and to support ongoing or future intellectual property protection efforts.

Signature:

Place and Date:
[Wrocław / City] – 8.05.2025