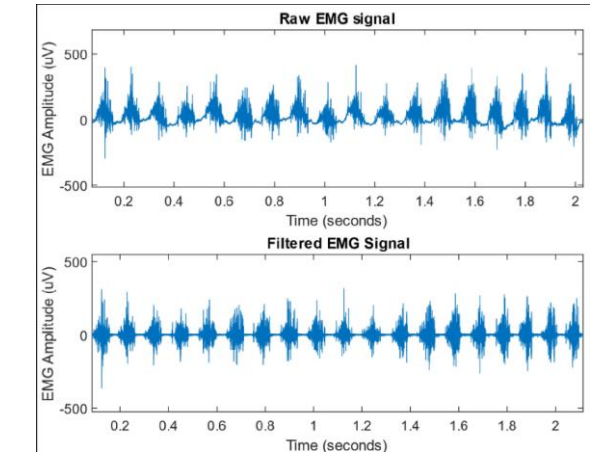
MEDICAL DEVICE (Electromyogram)

- **Presented by: Stephanie C. Okosa**
- **Date: 15.06.22**



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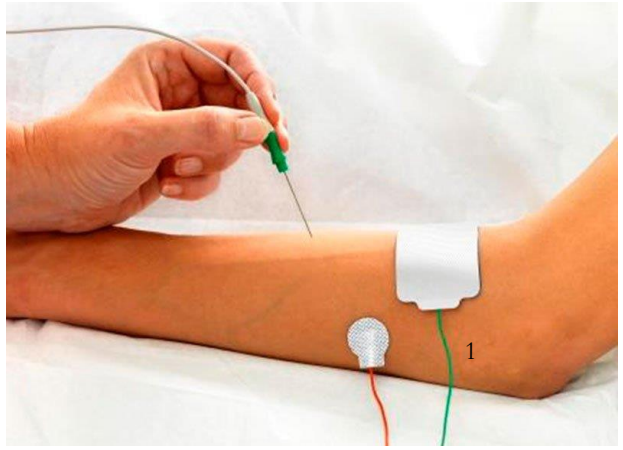


[4]

WHAT IS AN EMG

USERS

- **Patients**
- **Doctors or hospital technicians**
- **Specialists**

Fig. 1. Surface electrodes [3]

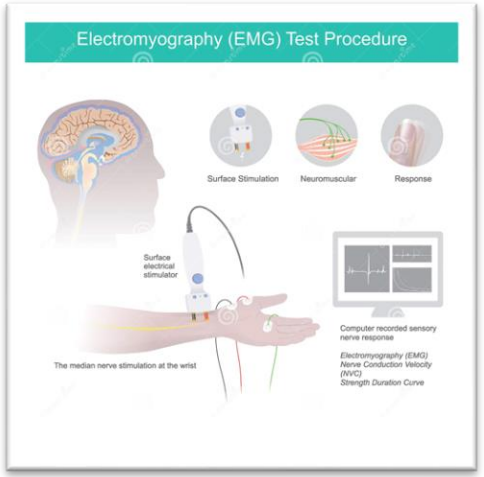


Fig. 2. Needle electrodes [2]

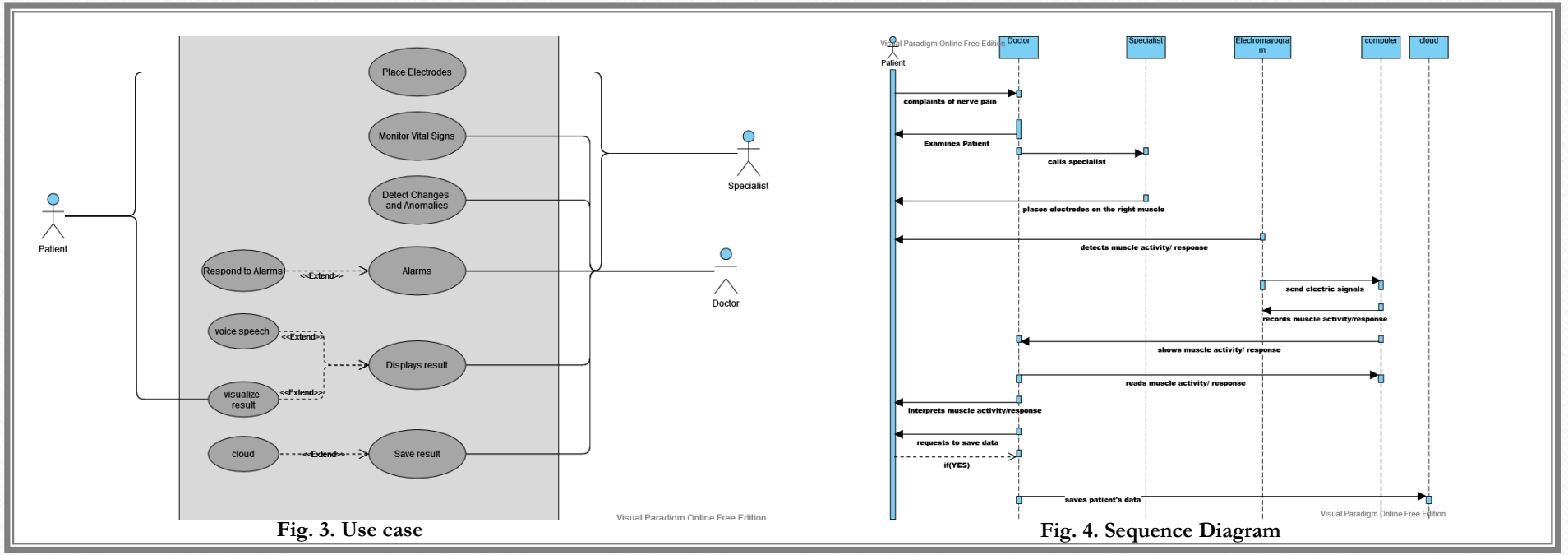


Fig. 3. Use case

Fig. 4. Sequence Diagram

FUNCTIONS OF EMG

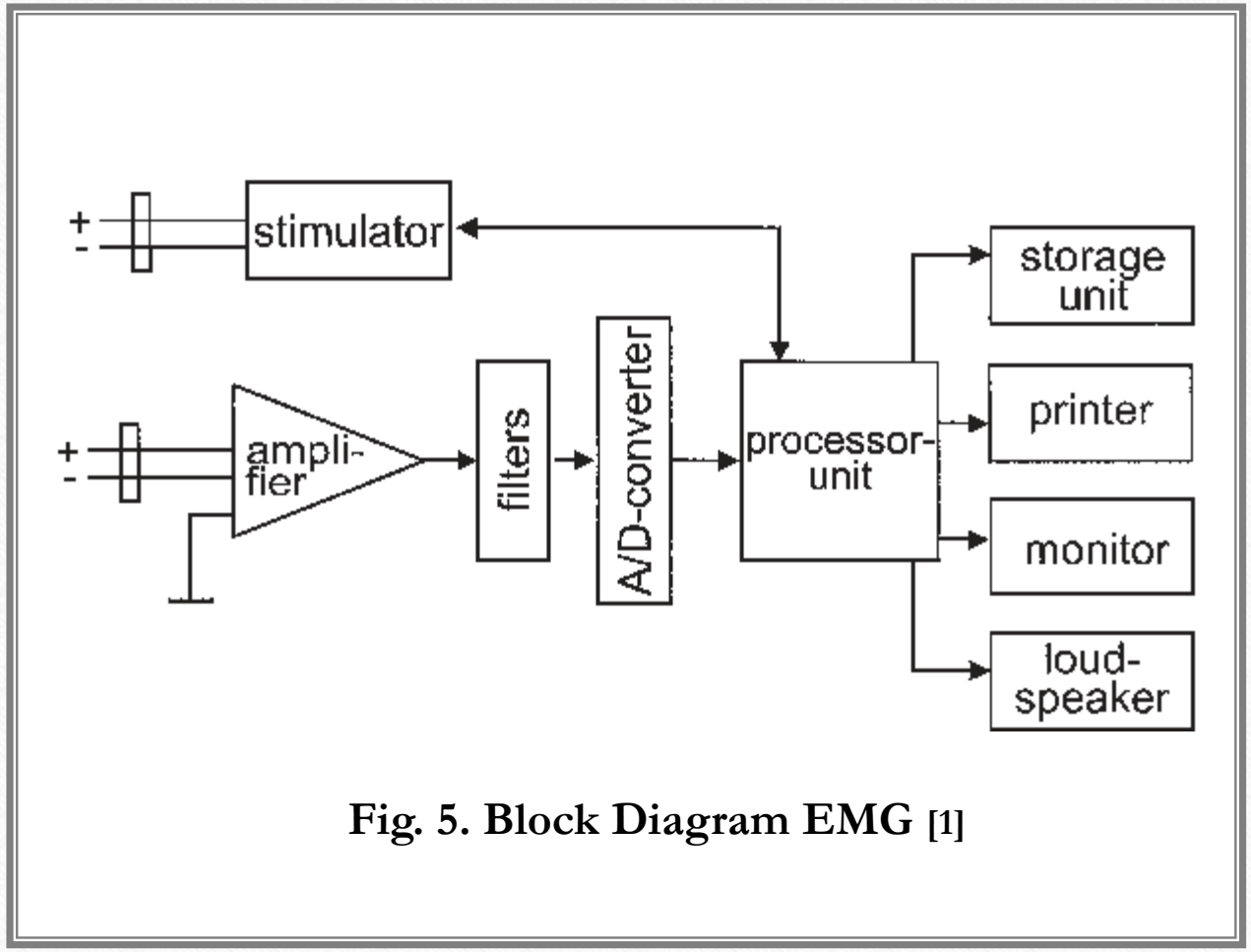


Fig. 5. Block Diagram EMG [1]

HARDWARE COMPONONENTS

- EMG detector
- Simulators
- Microcontroller(Arduino UNO)
- Amplifier
- Raspberry Pi 4
- Loudspeaker
- Screen
- Storage Unit.

Hardware Components

Figure 6: EMG sensor v1.1 **[6]**

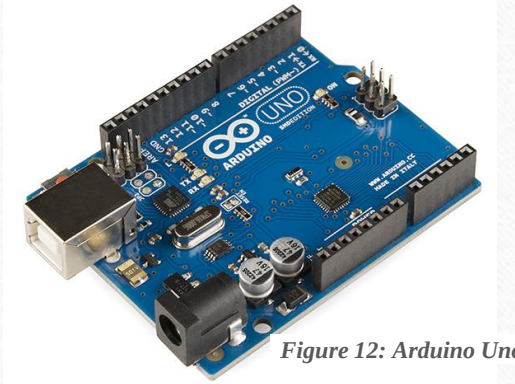


Figure 12: Arduino Uno [12]

Figure 13: Raspberry Pi 4 [10]

Figure 9: BIOPAC EMG100D [9]

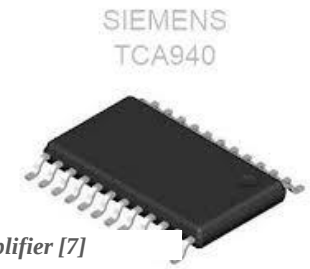
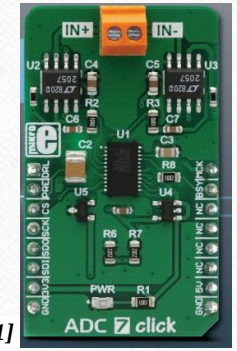
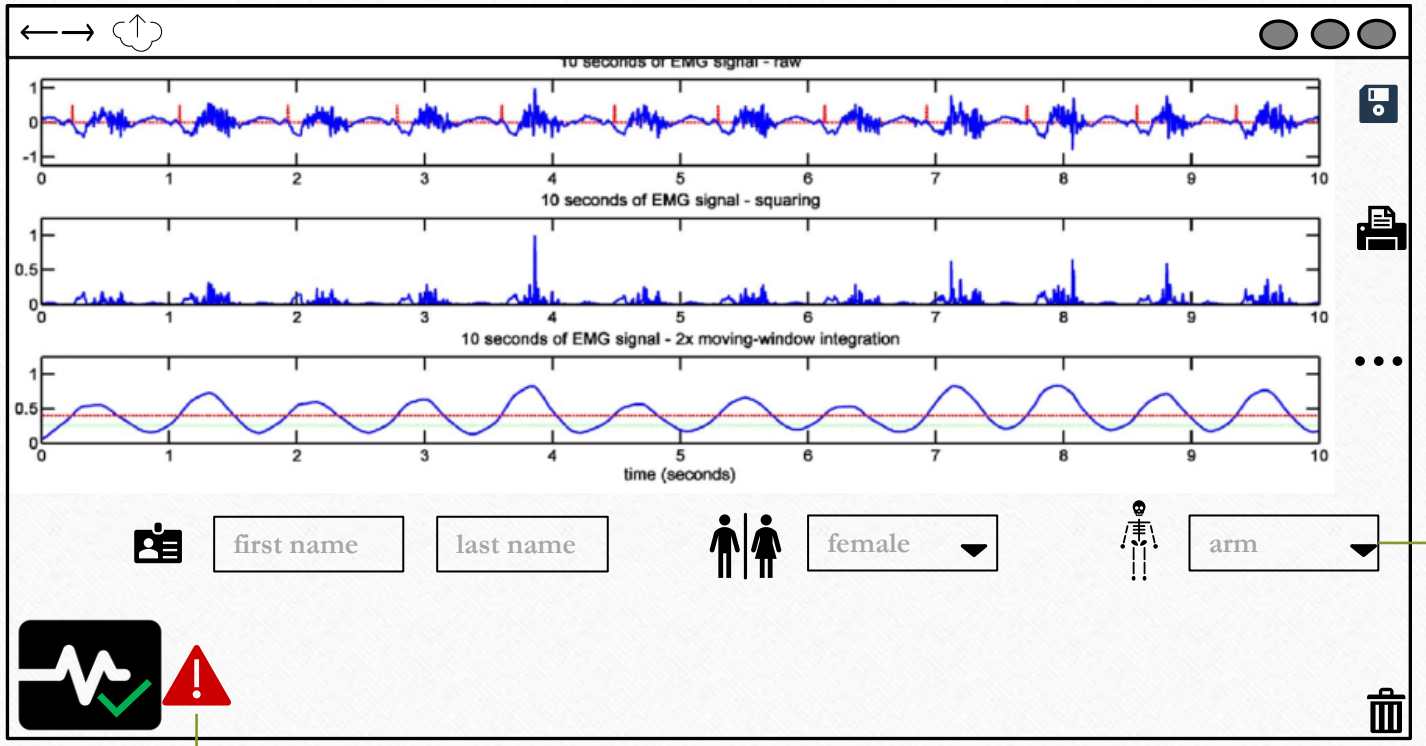


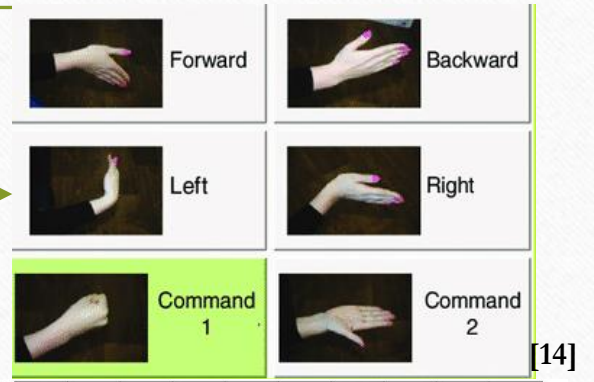
Figure 10: TCA9140 Amplifier [7]



igure 11: ADC 7 click 32-bit **[11]**

USER INTERFACE





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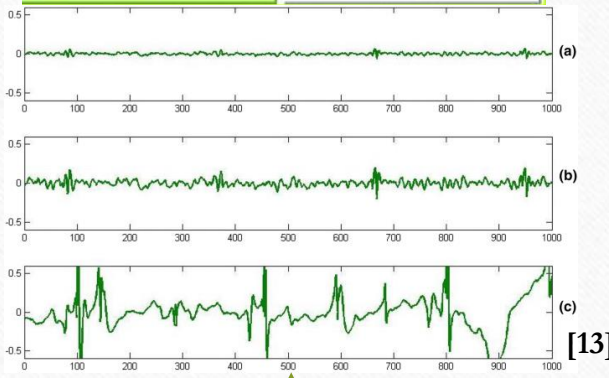

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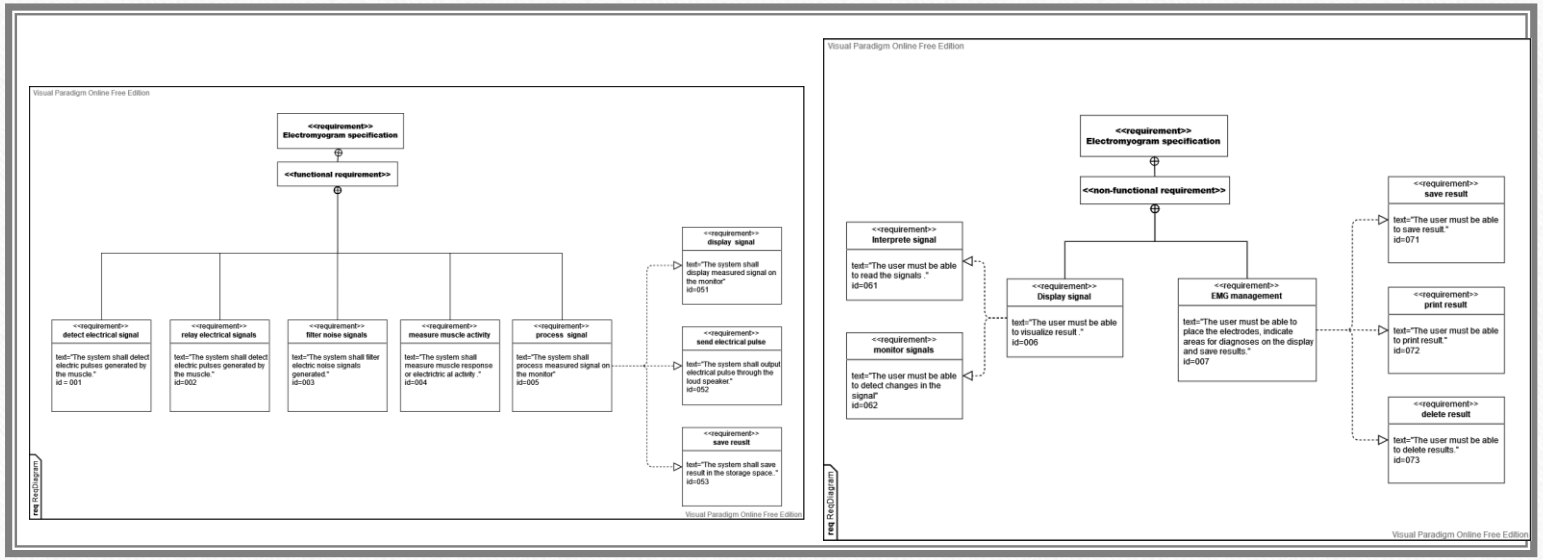
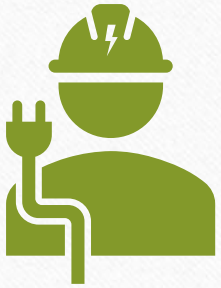


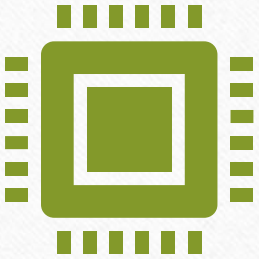
EMG REQUIREMENTS

CONCLUSION



Summary

EMG is used to detect and measure electrical activity of the muscles.



Future Direction

Advancement in signal detection.

Advanced algorithm to solve pattern recognition

Ways to reduce electrical signal noise.

THANKS FOR LISTENING

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