



# Helping Research the Creation of a Wearable Blood Flow Monitor



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## Introduction

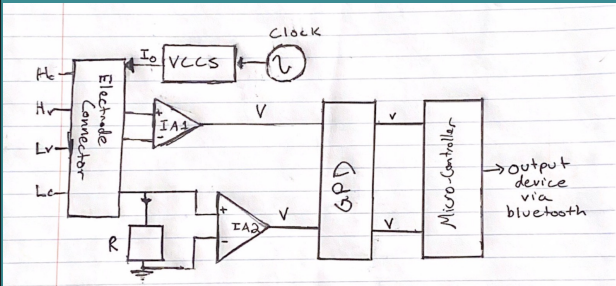
Within my research, I worked with a professor and PhD student to explore the challenges in designing a wearable blood flow monitor.

## Activities:

My main task was to determine how two devices communicate and to help design a circuit where an instrumentation amplifier is used. I created presentations detailing certain protocols used by devices today to communicate, and used different softwares to help design and simulate circuits.

## Impact:

An impact of this research was generally being able to learn so much about the engineering process, and what it takes to fully design even the most simple of circuits. Additionally, I was able to help on a project that helps advance technology to detect Deep Vein Thrombosis which notoriously is difficult to detect early on.



Above is a photo of a block diagram I created of the circuit where instrumentation amplifiers would be used. This block diagram was crucial in helping to design the final circuit.



Above is a screenshot of the output of the circuit I constructed to verify the performance of the instrumentation amplifier.

## Site Information:

Analog and Mixed Systems Laboratory

A.V. Williams

Sahil Shah

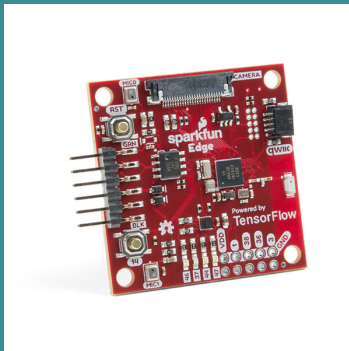
To help conduct research to build a wearable blood flow monitor.

## Discussion:

Throughout this research I learned a lot about computer engineering specifically in hardware design. I learned how different components work together and I learned about all the careful decisions one has to make when designing a circuit.

## Future Work:

Some future work I would like to be involved with is the testing of the device. I want to work to help test the device because I think this will help further my understanding of how electrical components work together. As the testing process continues I will be able to learn why certain changes were made and how that will affect the performance of the device.



## Acknowledgments:

Professor Sahil Shah and Utku Noyan

