

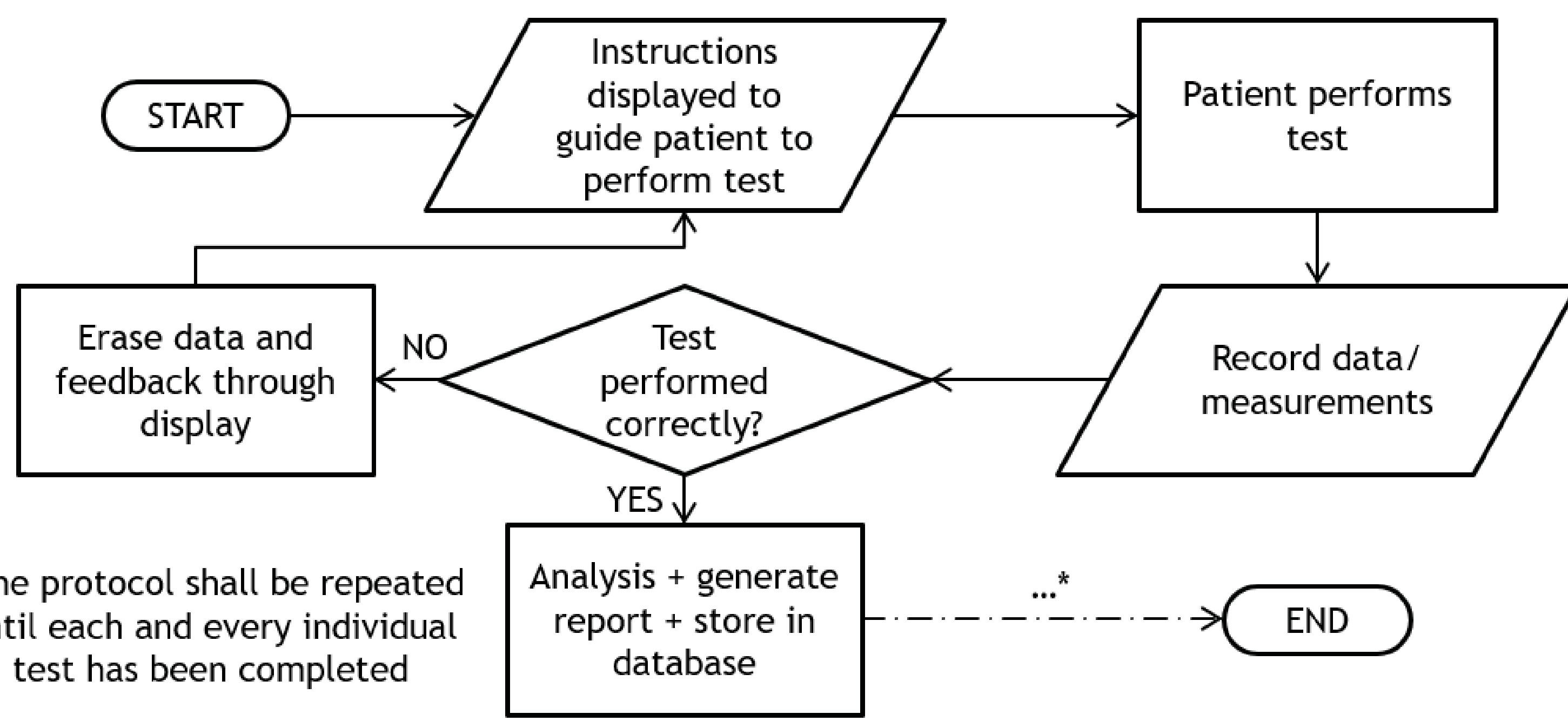
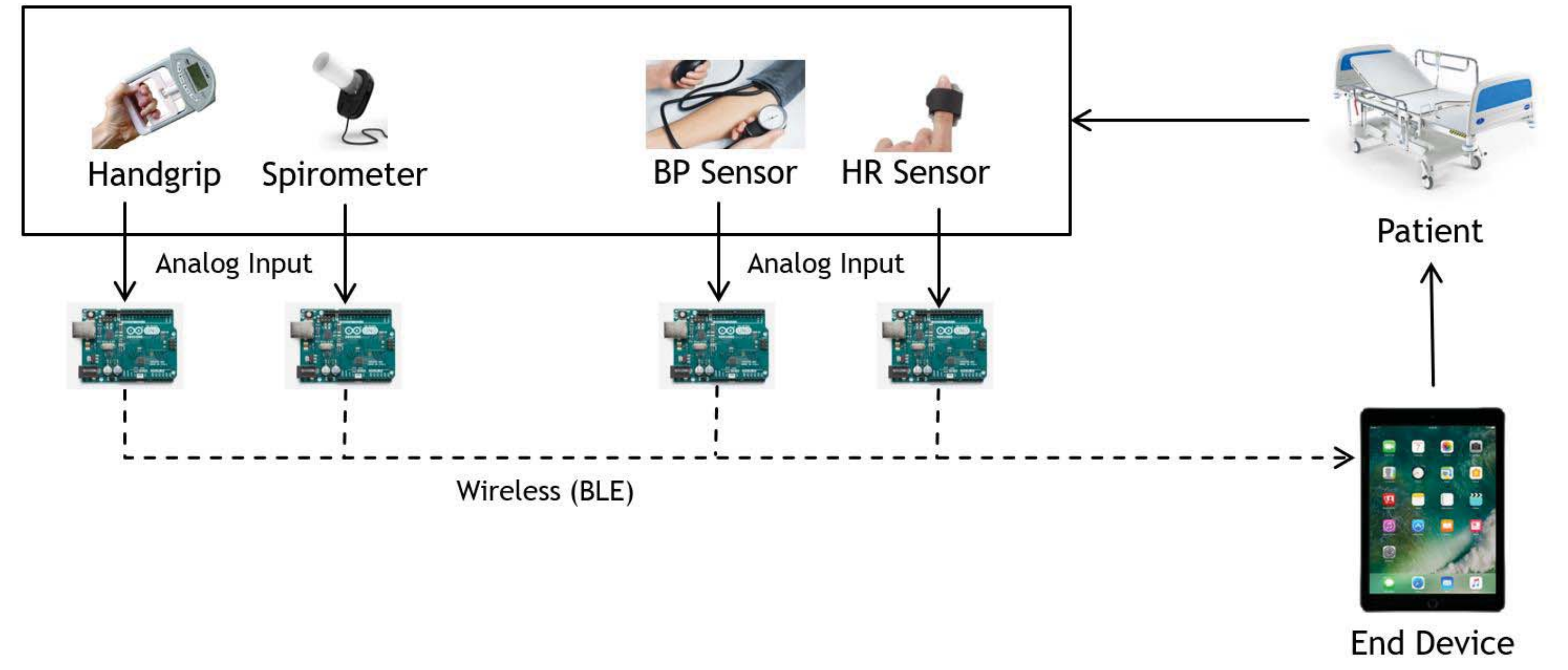
# Integrated Common Platform for the Digital Utilization of Clinical Protocols

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## Introduction

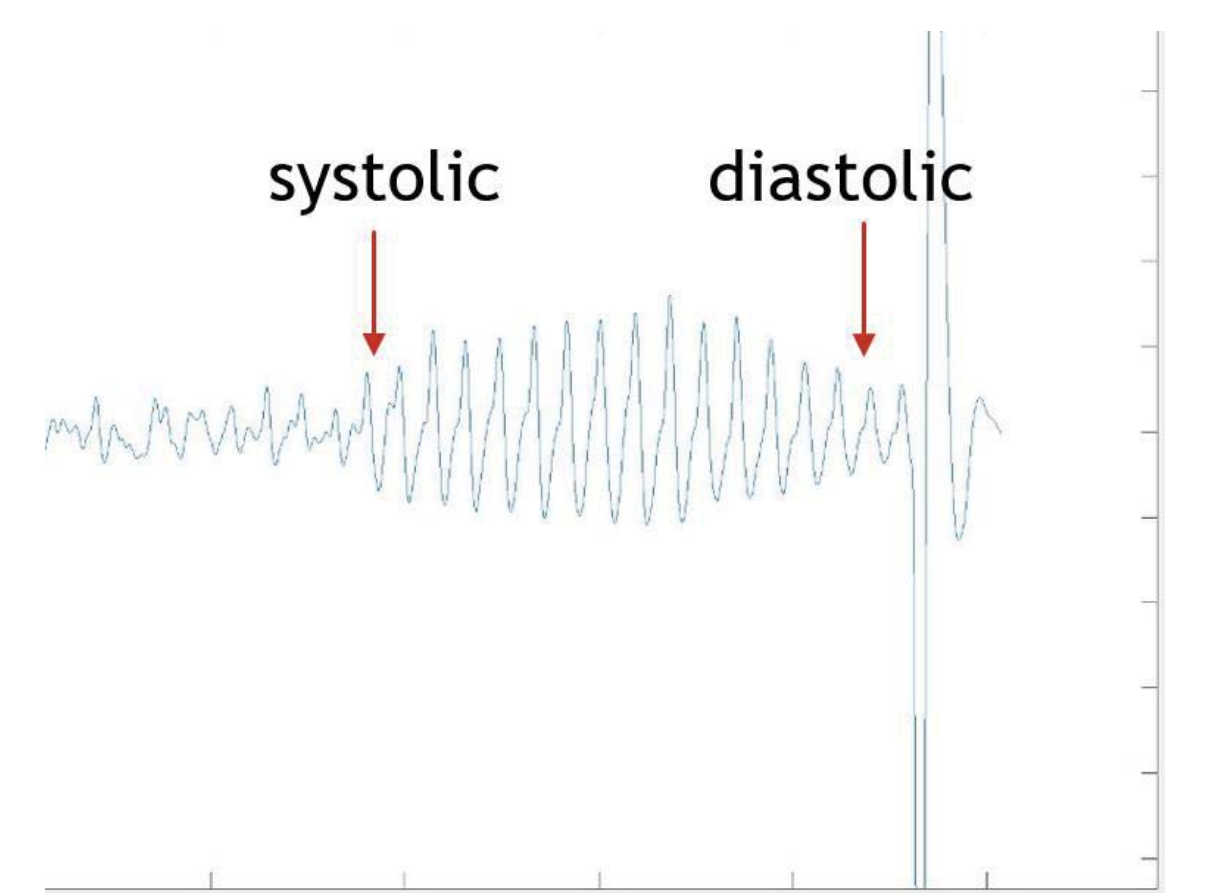
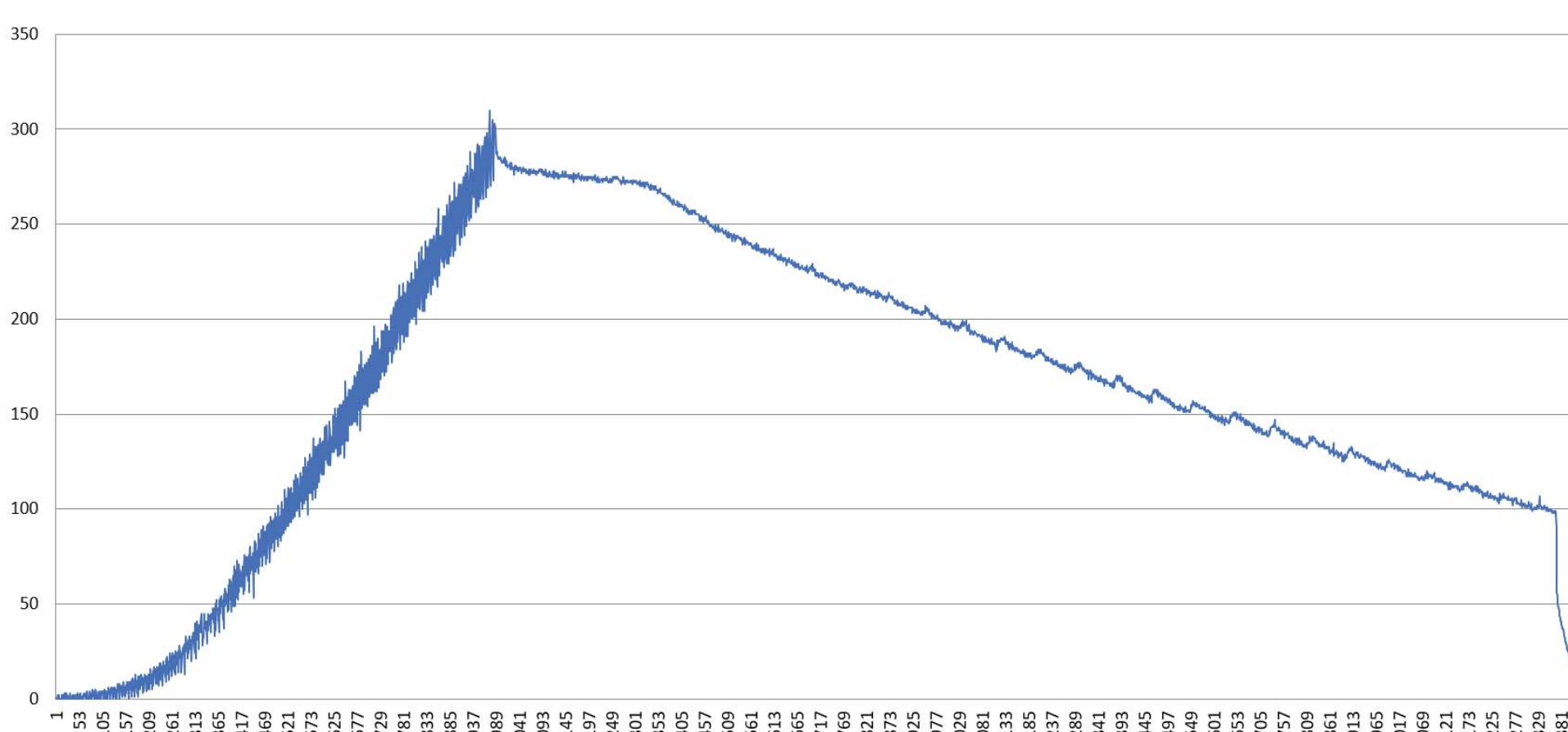
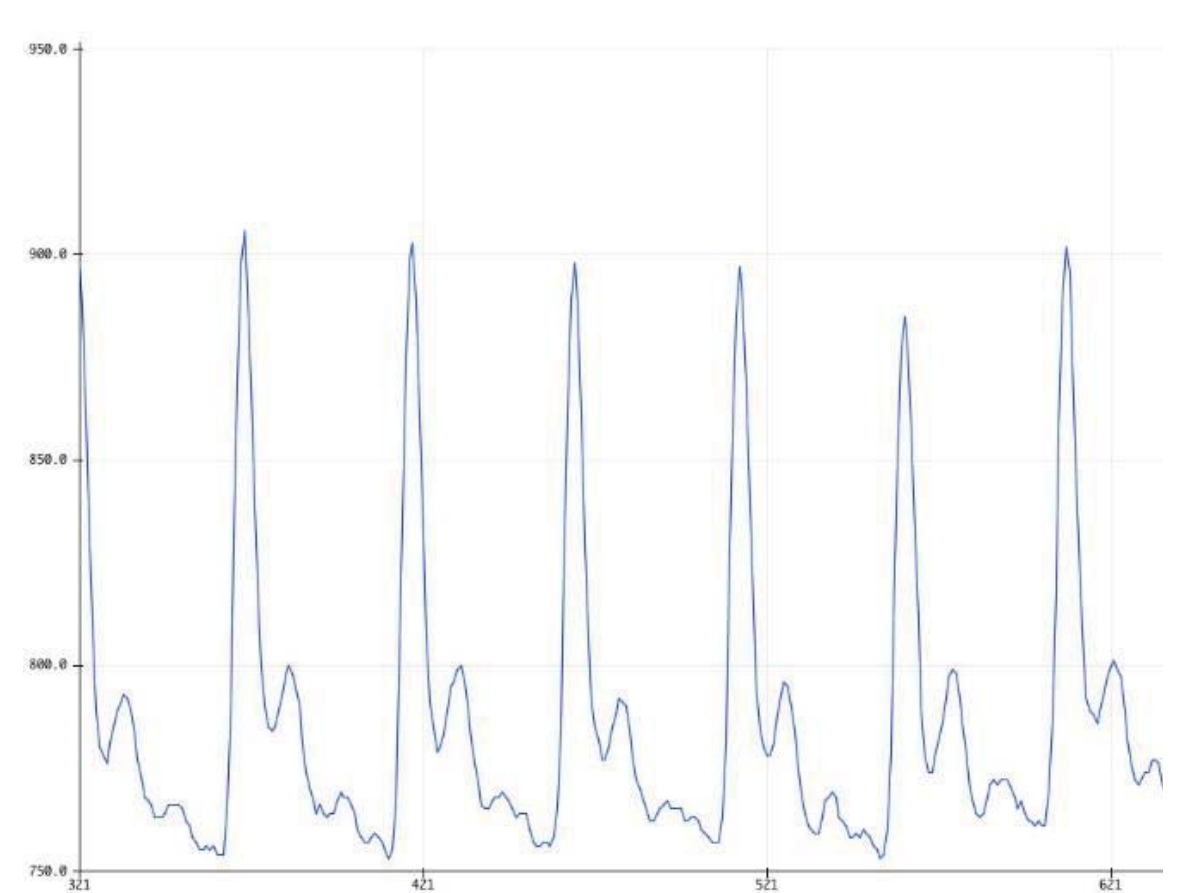
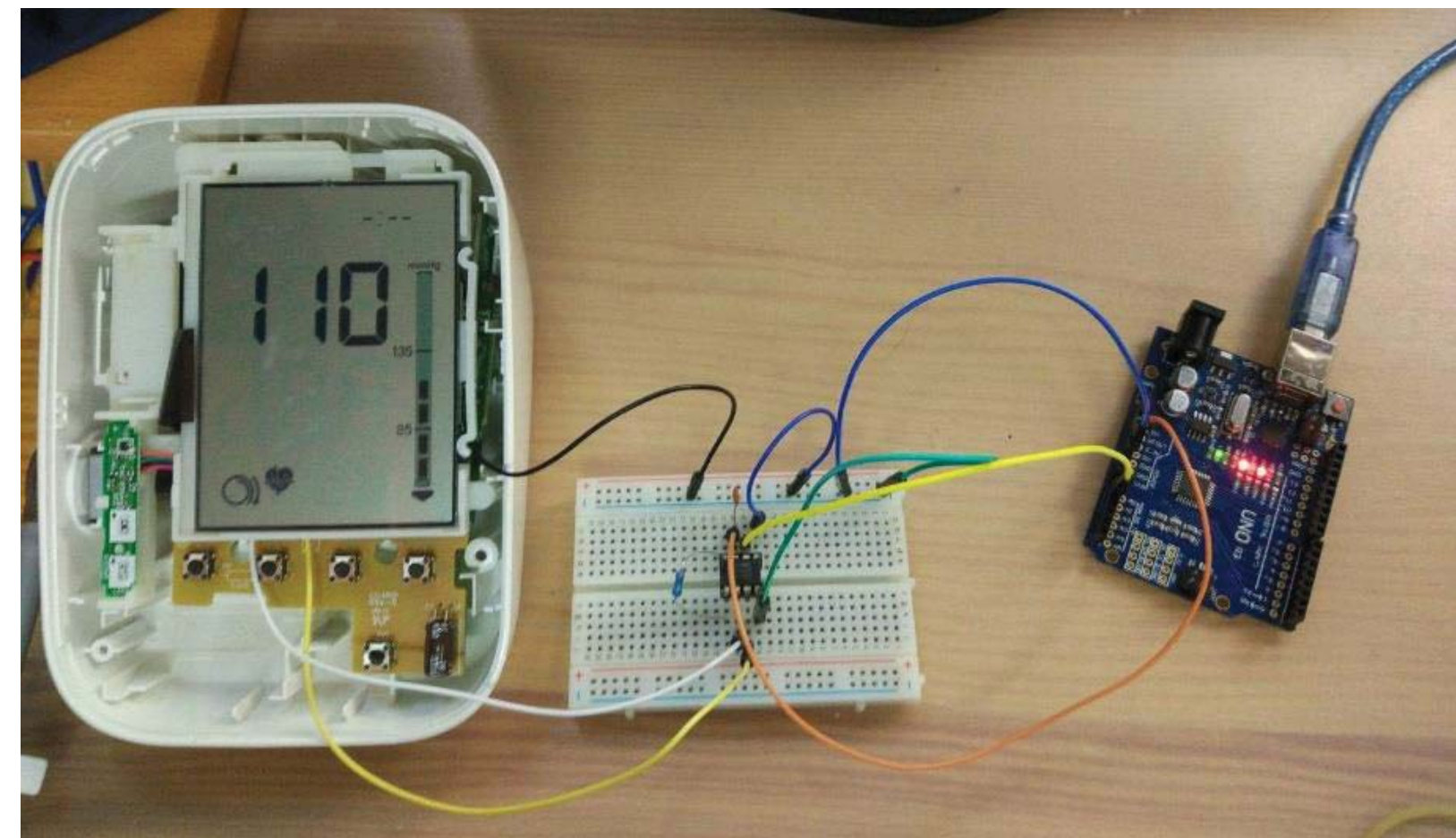
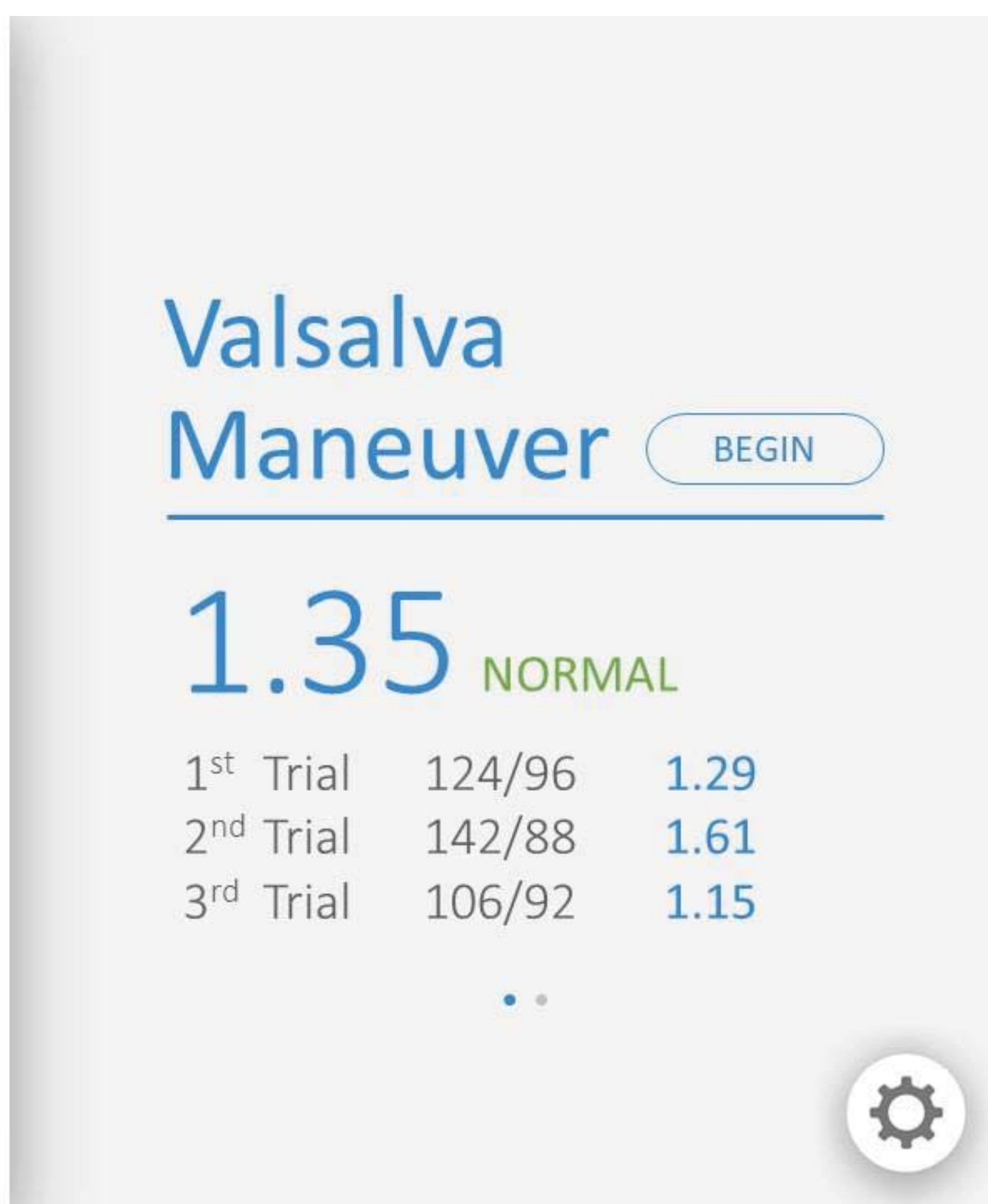
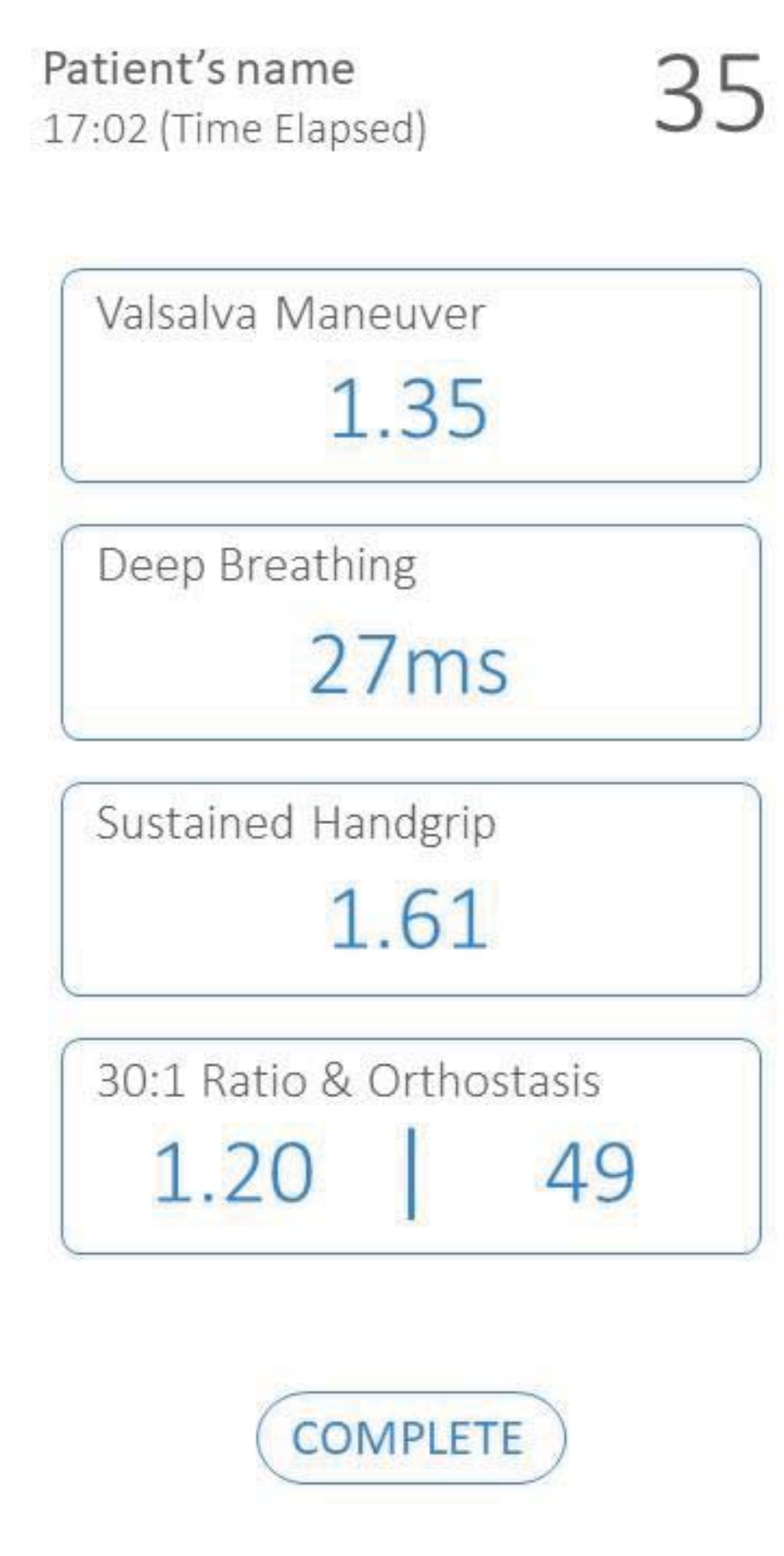
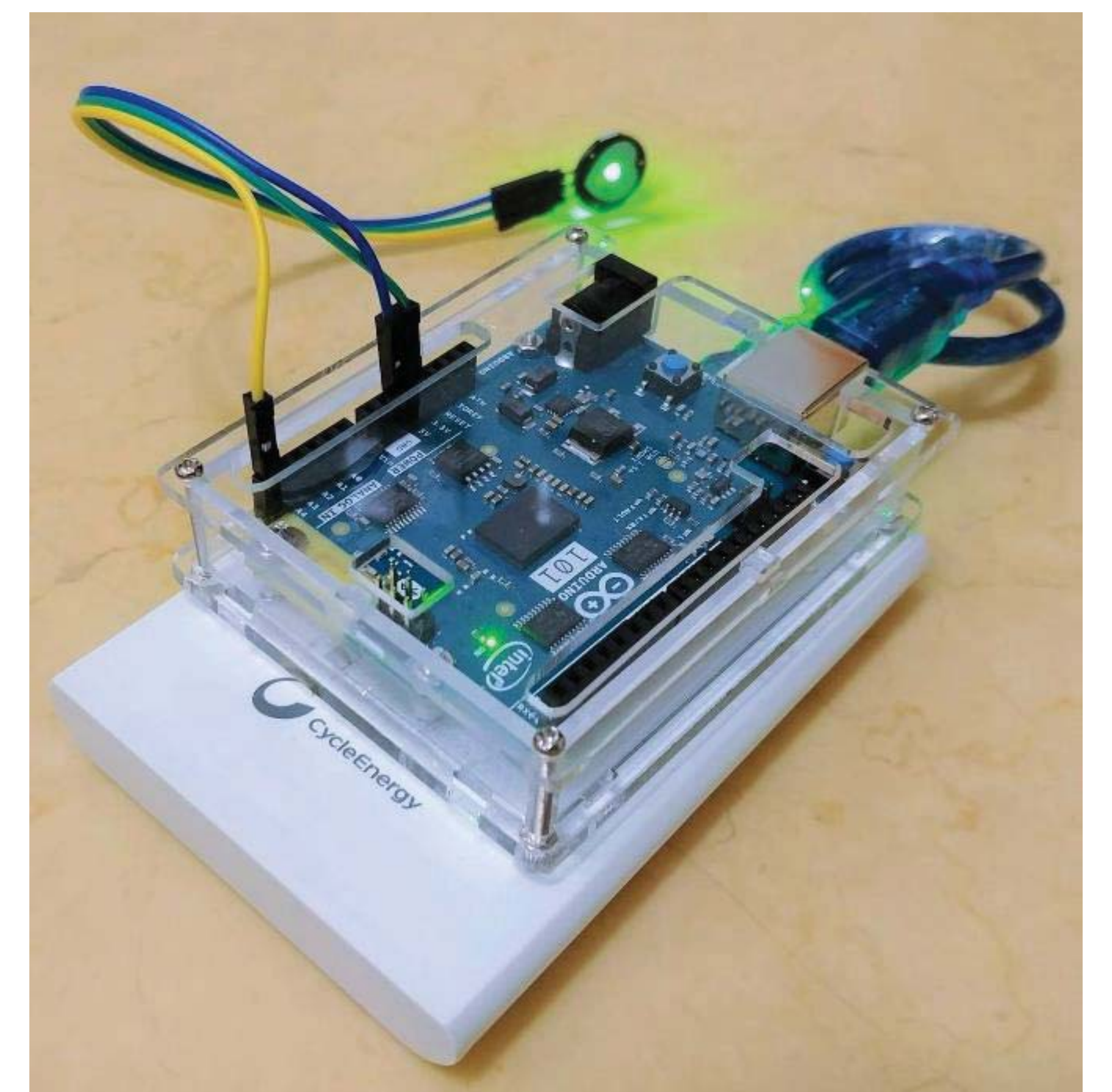
This project aims to develop an integrated common platform for the digital utilization of clinical protocols. For demonstrative purposes, the developed system is targeted to the diagnostic screening of autonomic dysfunctions.



## Proposed Approach

The new system, guides the patient through the screening and communicates with peripheral equipment that measure heartrate, blood pressure as well as other inputs simultaneously. The collected data will then be processed, calculated, and stored systemically for review. Communication with the patient, on the other hand, takes the form of graphical user interface.

- The setup includes a spirometer, dynamometer Heartrate Sensor and blood pressure monitor
- The above instruments will be hardware modified such the their output signals can be extracted for transmission
- The Arduino 101 circuit board, as a communication tool, transmit the input signals to the iPad, the receiver of the signals.
- An iOS application will be programmed such that the input signal can be interpreted, analyzed and rendered into meaningful results for the functional purposes it is designed for.
- The input instrumentals, communicator and the end receiver constitutes the new system.
- The setup of the system, namely the hardware inputs and the end device, can be swapped out or exchanged into other instruments to perform different tasks and to fit for different purposes. This allows for recombination of instruments for endless possibilities. Hence the versatility of the common platform.



## Conclusion

The possibility of using BLE as means of integration of hardware components and a common platform has been explored. It has been confirmed that BLE can be used to communicate information between hardware inputs and a central platform where analysis can be carried to generate meaningful results.

A specific protocol is used as example to demonstrate the versatility and convenience of such system in a clinical setting, and its potential to drive new innovations. Clinical instruments have been chosen to be integrated into the common platform through hardware modification and developing the corresponding algorithm.

Taking into consideration the visually weak and the elderly as part of the target users, flat design quickly becomes advantageous in such case due to its increased comprehensibility over Skeuomorphism. As a result, flat design is adopted in the final GUI.

## Acknowledgement

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