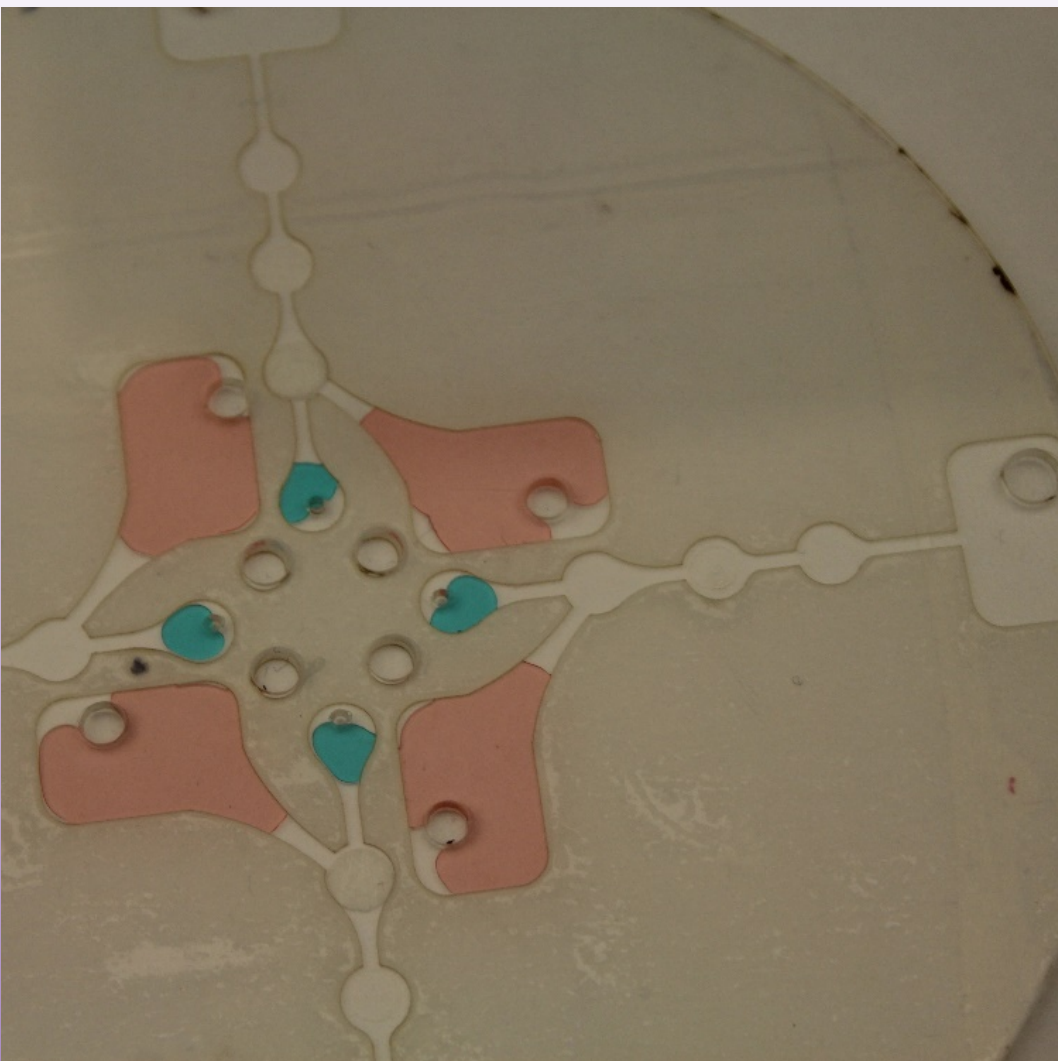


SENSE NC: MULTIPLEXED CARDIAC BIOMARKER ASSAYS

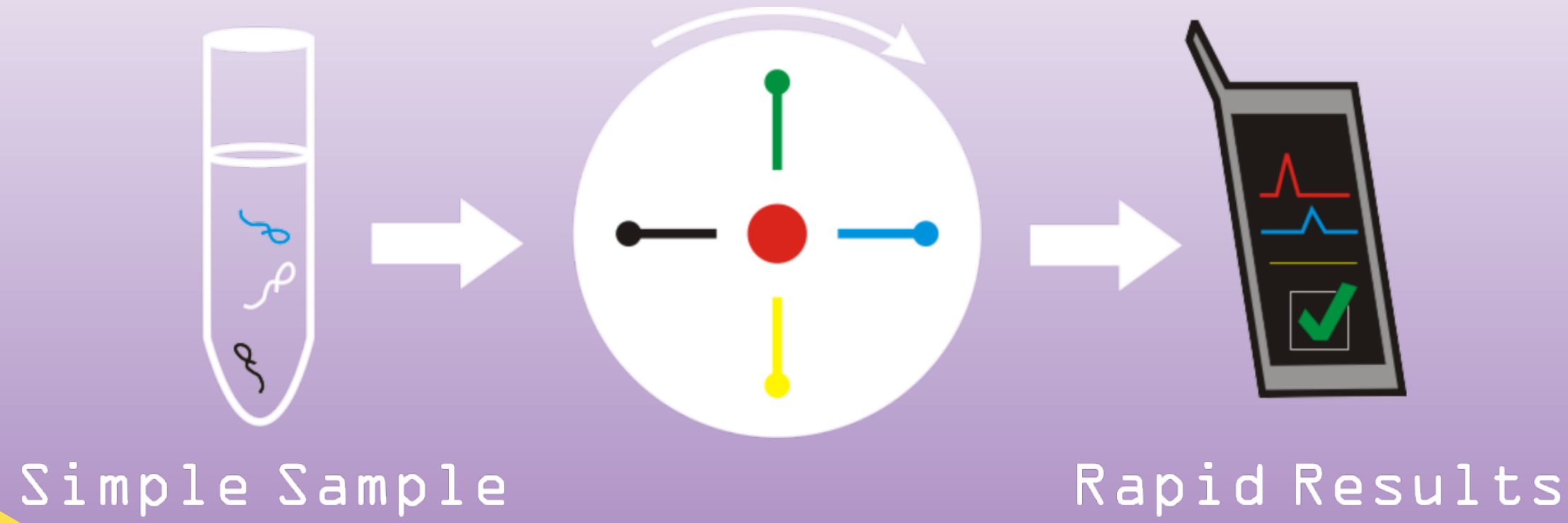
mike wilkins-brendan turner-ben goodson-calvin shanahan-bret pienkosz-matt sabo-jack twiddy-alice difazio
north carolina state university-university of north carolina at chapel hill

UNITED STATES OF AMERICA

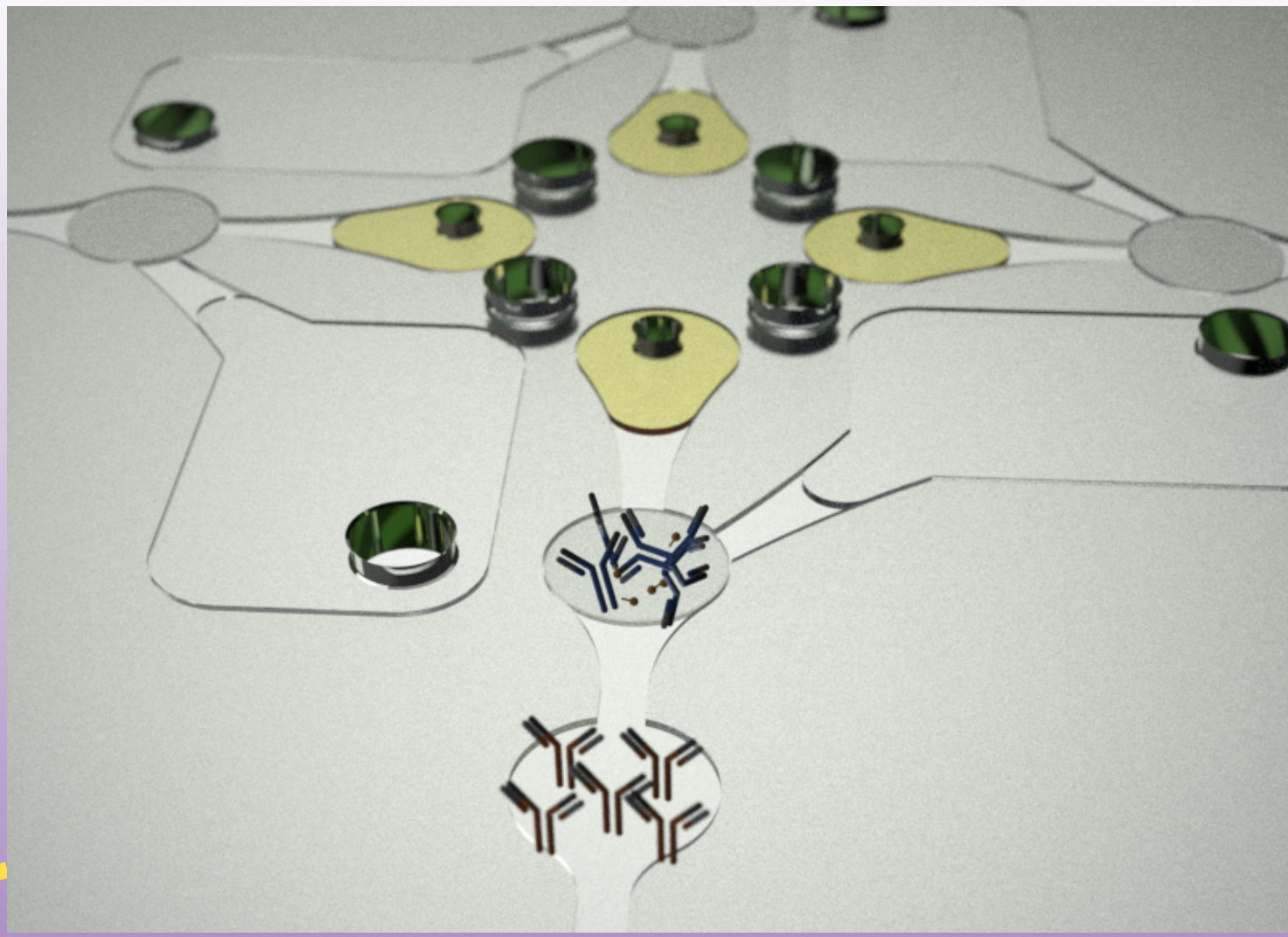
MICROFLUIDIC SAMPLE PROCESSING



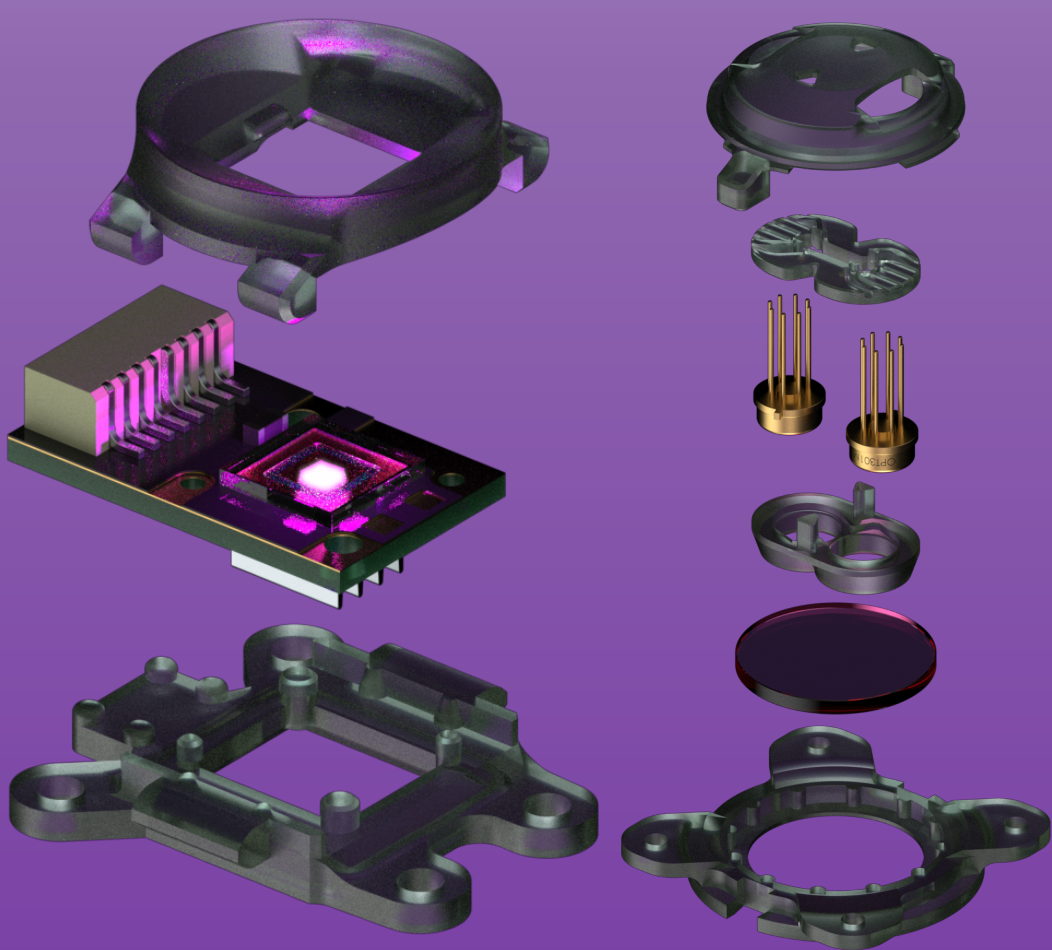
ACCELERATED+AUTOMATED IMMUNOASSAYS



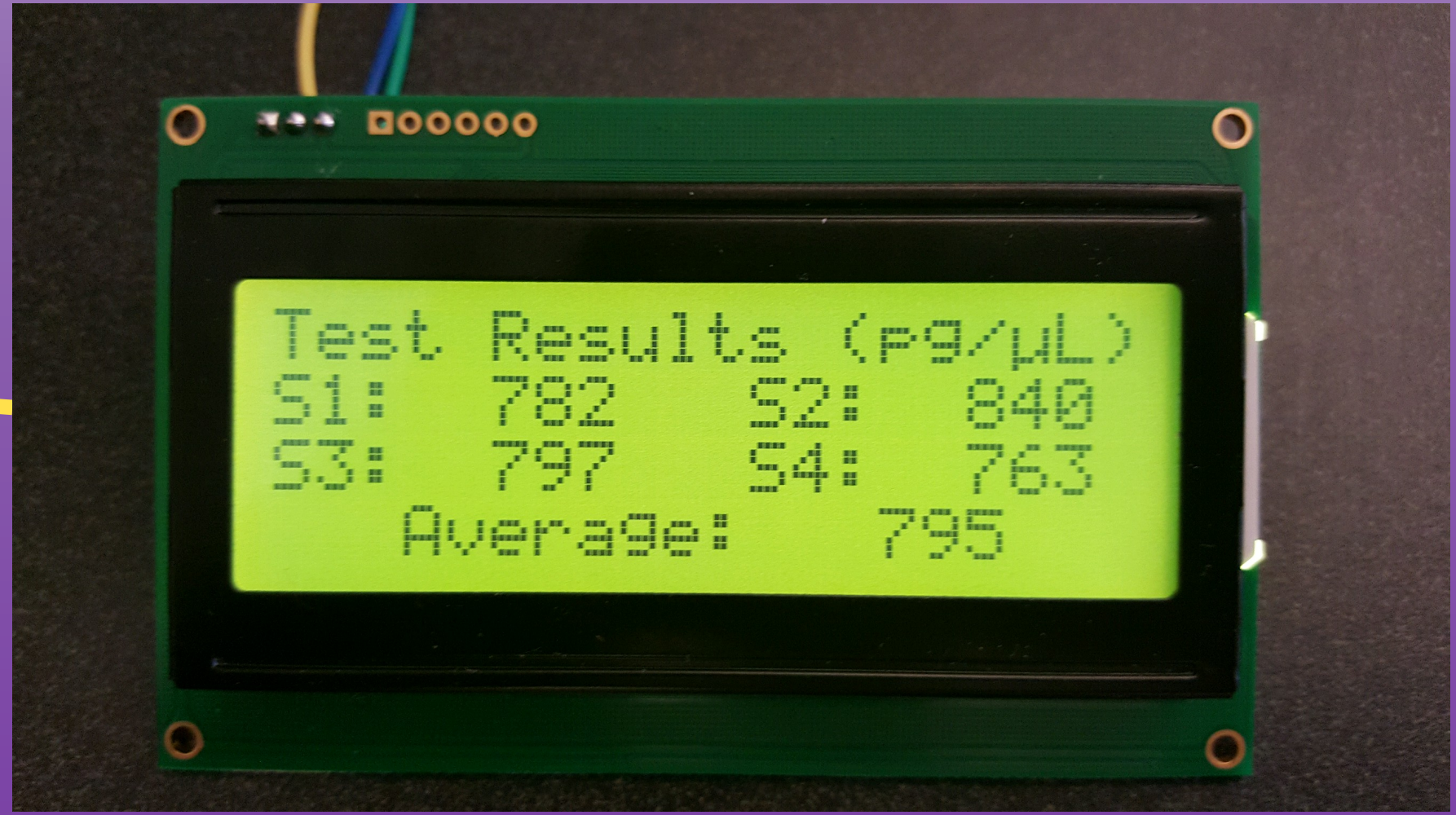
IMMUNO-RECOGNITION



FLUOREMETRIC DETECTION



USER FRIENDLY INTERFACE



BN-3PO

symptoms

- Emergency Room wait times in the United States are long. Only **29.8% of Emergency Room patients were seen within 15 minutes** in 2013 [1].
- Heart failure is diagnosed in 550,000 American patients per year, and plays a role in approximately **287,000 American deaths** per year [2].

[1] <https://www.cdc.gov/nchs/fastats/emergency-department.htm>
[2] <https://www.emoryhealthcare.org/heart-vascular/wellness/heart-failure-statistics.html>

diagnosis

- Our device only **takes five minutes until a response is given**, making it quicker than any device available right now.
- Requires a quarter of blood plasma as any currently available test for NT-proBNP.
- Discs used in device are **replaceable**, making it a **cost effective** device to use.
- NT-proBNP devices are not commonly used for diagnosis of heart failure in the United States, which supplies a **new avenue** for saving lives.

the team



Mike Wilkins (Captain)	Electrical Engineering
Brendan Turner	Chemical Engineering
Ben Goodson	Electrical Engineering
Alice diFazio	Chemical Engineering
Calvin Shanahan	Chemical Engineering
Bret Pienkosz	Chemical Engineering
Matthew Sabo	Electrical Engineering
Jack Twiddy	Integrated Manufacturing Sys. Eng.