NC STATE UNIVERSITY

SenseNC

AccuFRET

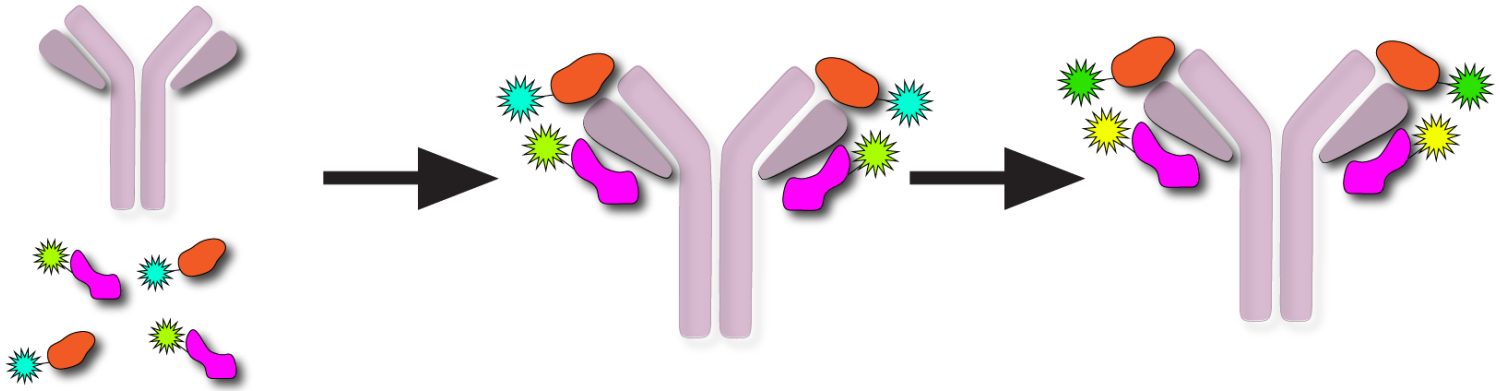
SensUs 2019

Creativity Pitch

Matthew Sabo – Team Lead

NC STATE UNIVERSITY

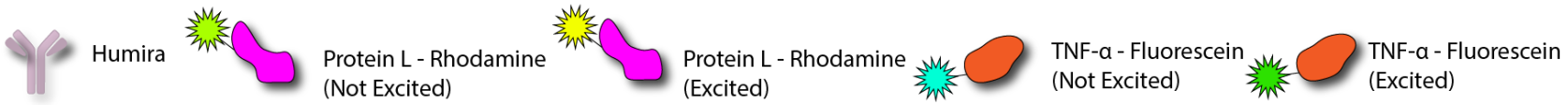
Fluorescence Resonance Energy Transfer (FRET)



A) Add Humira to protein solution

B) Binding events occur

C) LED excitation generates FRET response



FRET

One dye excites another in close physical proximity (~10nm)

Fluorescent Markers

TNF-α bound to Fluorescein (FITC)
Protein-L bound to Rhodamine (TRITC)

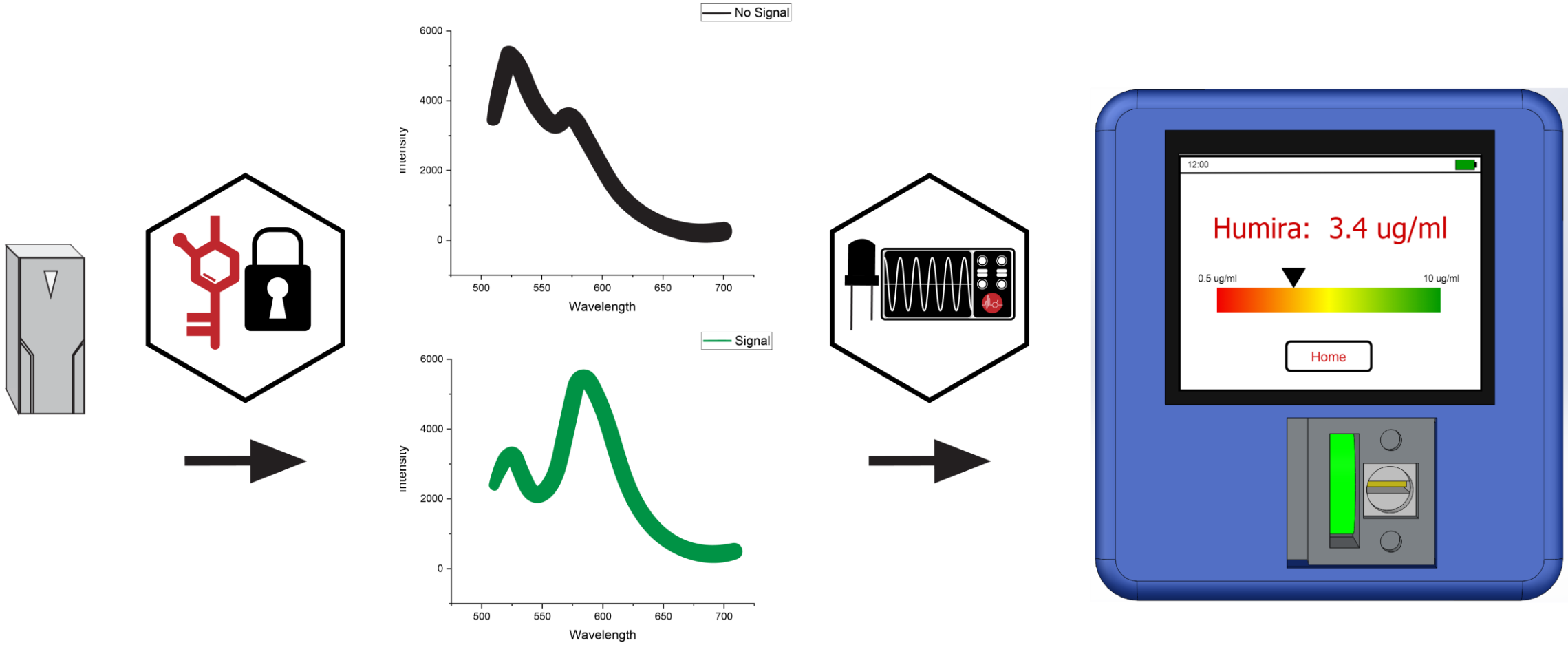
Humira as the Facilitator

Humira binds both TNF-α and Protein-L which creates the environment for FRET

SenseNC

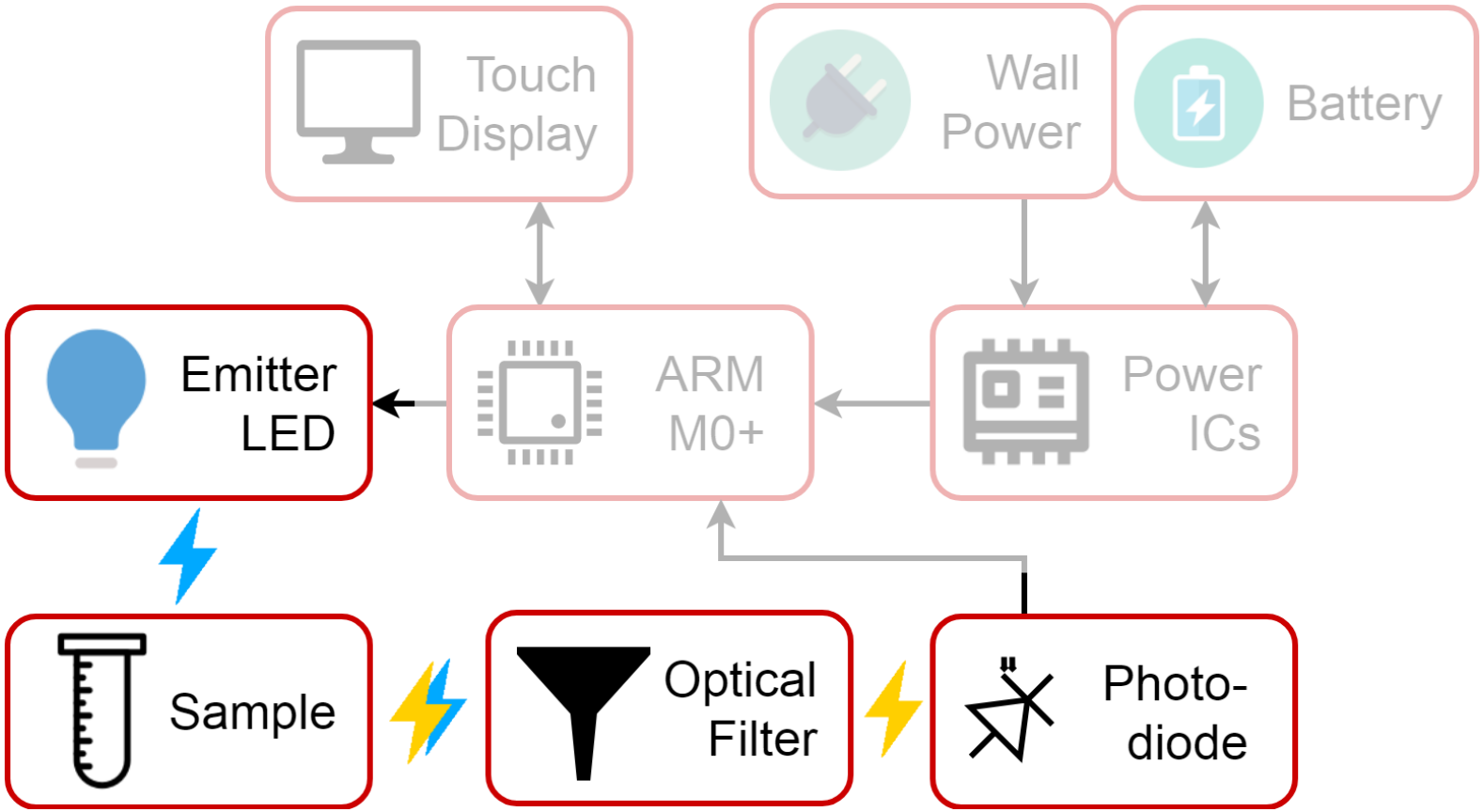
NC STATE UNIVERSITY

AccuFRET System



SenseNC

Transduction Hardware



Excitation

Sample is excited by an LED (470nm)

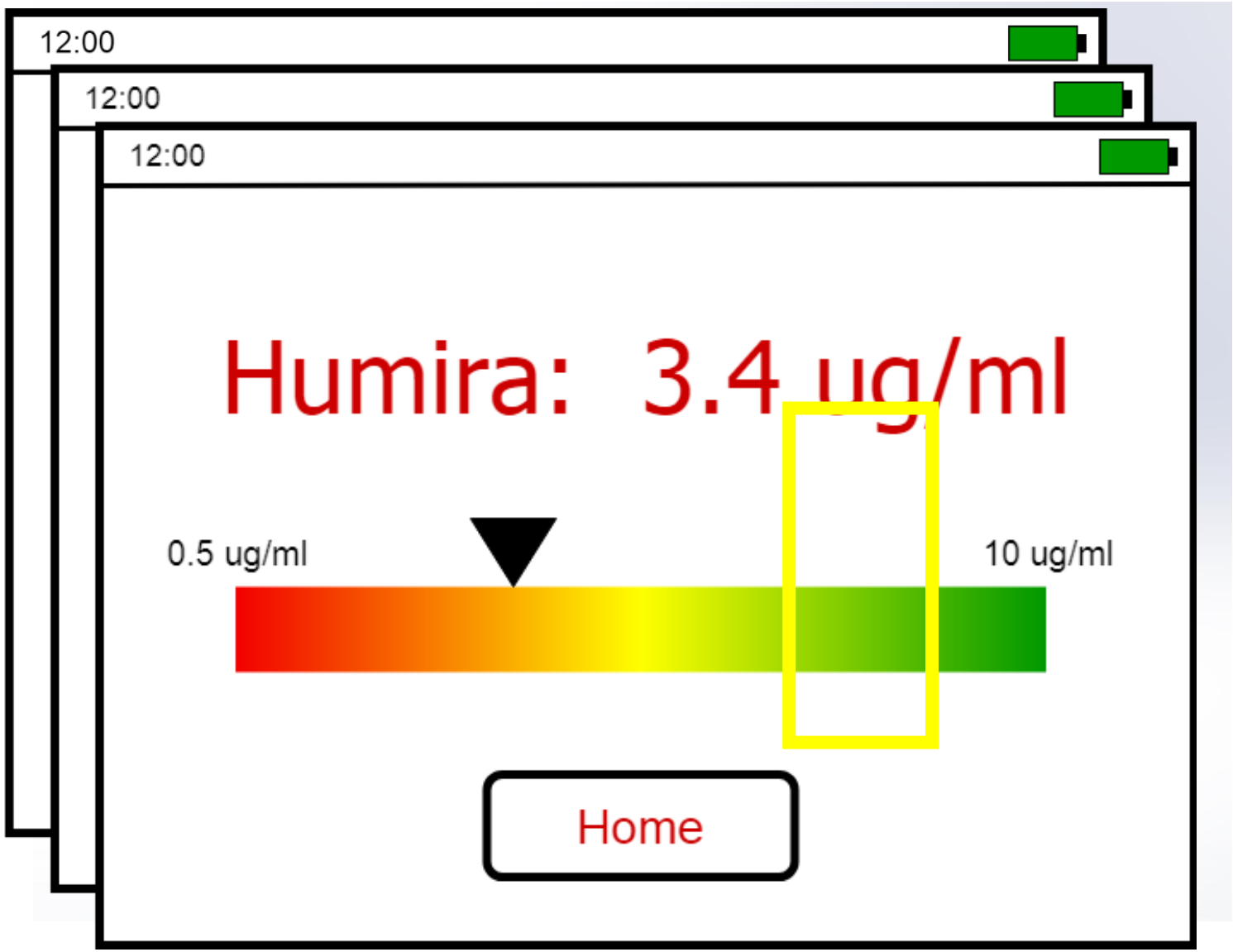
Emission Filtering

Optical long-pass used to filter emission

Detection

Photodiode used to measure the emission intensity

User Experience



Compact Design

Portable, robust design meant for both in-home and hospital use

Single-Use Cartridge

Low cost, single-use cuvette makes fluid handling easy for the user

Easy as 1-2-3

1. Touch Start
2. Wait for Test
3. Read Result

NC STATE
UNIVERSITY

SenseNC

Thank You!

AccuFRET

Matthew Sabo