

Under Pressure

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Sarah Castillo
20% Time

The Issue

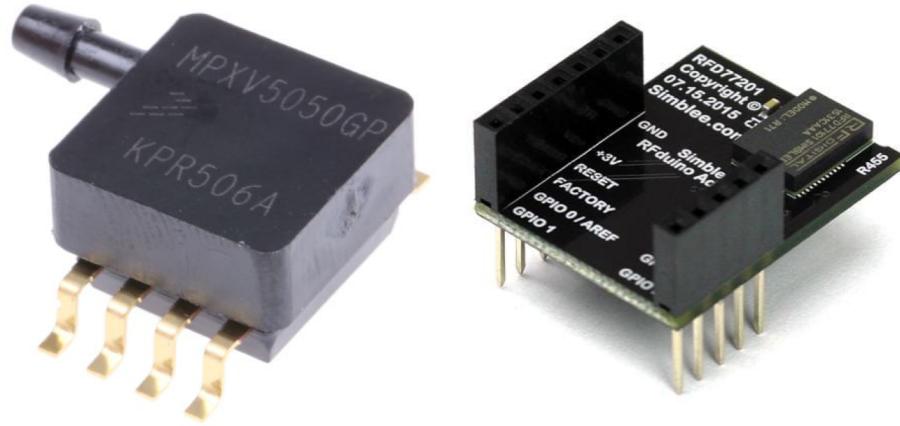
- ★ Heart disease is the leading cause of death in the U.S.
- ★ High blood pressure = greater chance of heart disease
- ★ Checking blood pressure regularly can help manage and prevent heart disease

The Goal

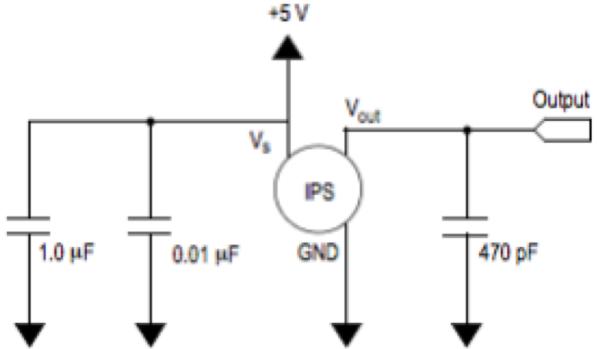
- ★ Explore my passion of EE&CS
- ★ Create a wireless blood pressure monitor
- ★ Mobilize healthcare
 - Simpler
 - Affordable
 - Accessible
 - Portable

The Research

- ★ Previous papers on blood pressure monitors
 - Low-cost materials
 - No wireless
 - Pressure sensor
- ★ Microcontroller
 - Makes the blood pressure monitor wireless



The Circuit

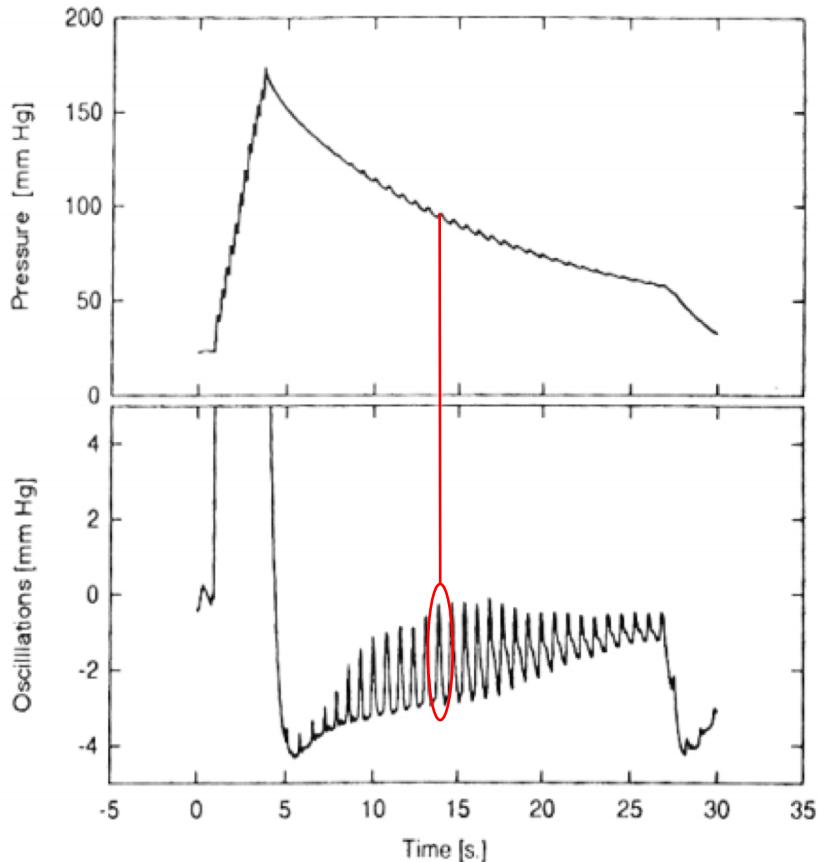


- ★ Capacitors reduce noise
- ★ Attached to microcontroller

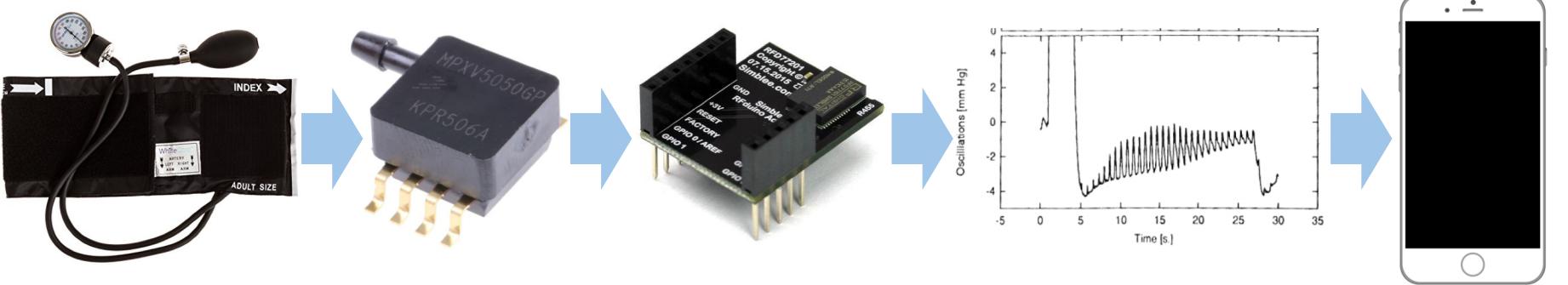


The Algorithm

- ★ Mean Arterial Pressure (MAP) =
pressure @
maximum amplitude
- ★ Calculate systolic and
diastolic pressure
from the MAP



The Process



Measures pressure

Converts pressure to voltage

Sends voltage to phone

Finds systolic and diastolic pressure

Displays on phone screen

The Results

Link to Under Pressure video demo:

<https://drive.google.com/file/d/1nlDgC-wvqAUWKJZFMv4YyCRsjA-lpI4/view?usp=sharing>

The Lessons

- ★ Reconfirmed my passion and pursuit of engineering
- ★ Don't need specialized education to accomplish ambitions
- ★ Success is found when you channel personal interest to help others

The Future...

- ★ Improve my application
 - User-friendly
 - Interactive
 - Informative
- ★ Share learning experiences

Thank you!