SONOMA STATE UNIVERSITY

Department of ENGINEERING SCIENCE

Low-Cost Remote Weight Watcher

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Healthcare Technologies Laboratory
@ Sonoma State University

Motivation

- Commercially available weight monitoring systems are expensive and lack flexibility
- Our design focuses on
  - Low-Cost
  - Flexibility
  - Ease-of-use
  - Open-source-software
  - Real-time measurements

Why Remote Weight Watcher?

- Among U.S. residents ages 65 years & older, 10.9 million, had diabetes in 2010 [1]
- The most recent annual data from the Census Bureau reports that 7.5 million senior women and 2.6 million senior men live alone [2]
- In Sonoma county of those over 65, one in 2.4 was living alone (41.7%) [3]

Weight Watching is a Major Issue for Senior Citizens Who Have Diabetes & Are Living Alone!

Facts of Diabetes in the U.S.

Diabetes affects 25.8 million people of all ages
8.3 percent of the U.S. population

DIAGNOSED
18.8 million people

UNDIAGNOSED
7.0 million people

Our Design Features

- Affordable for any small clinic and hospital
- Easily configurable
- Open source libraries and tools
- Web-enabled and completely accessible by remote users
- Highly reliable
- Based on off-shelf components

Low-Cost Remote Weight Watcher System

Remote Weight Monitoring

Server/Data Base

Internet

Nurse;
Care Giver

iPhone Enabled

SMS Alert

SSU Nursing Student

Remote Weight Watcher

- Developed by the Department of Engineering Science at Sonoma State University
- **Allows remote patient weight monitoring**
- Low-cost and requires minimum hardware modifications
- **Simple to use**

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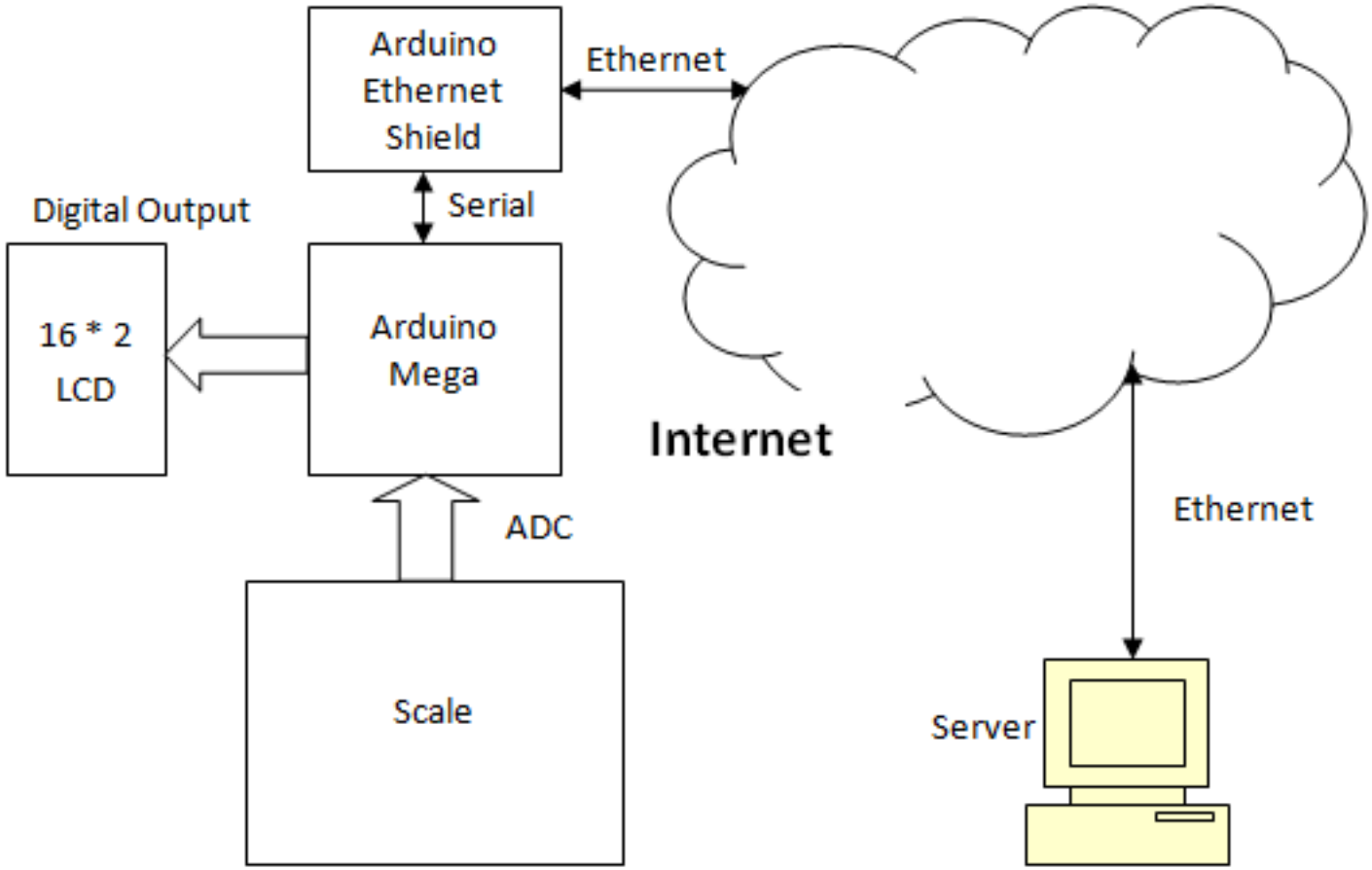
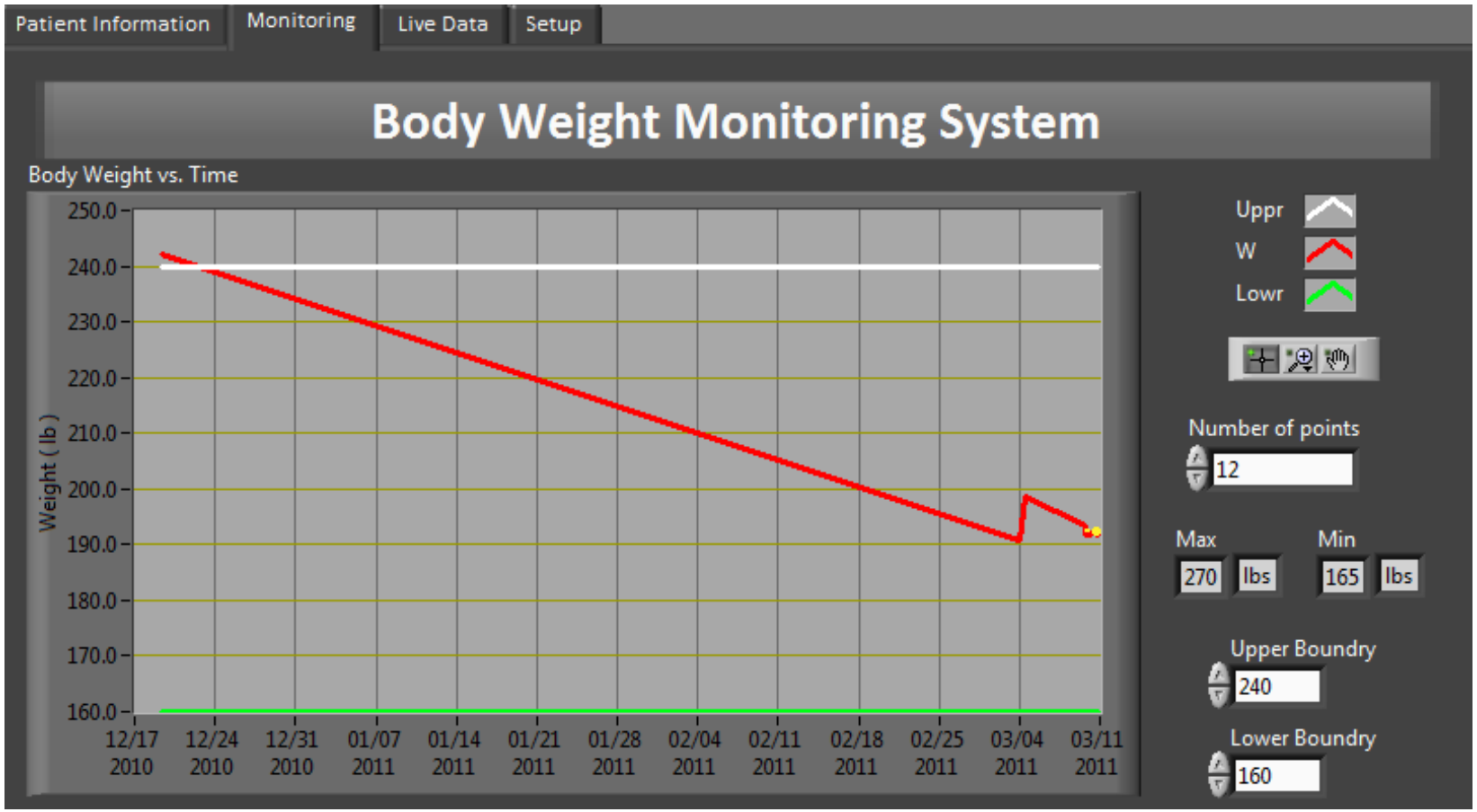
Capabilities

- Based on LabVIEW software
- User-friendly
- Configurable environment
- Allows collaboration among users
- Cost-efficient and flexible

Architecture



User Interface



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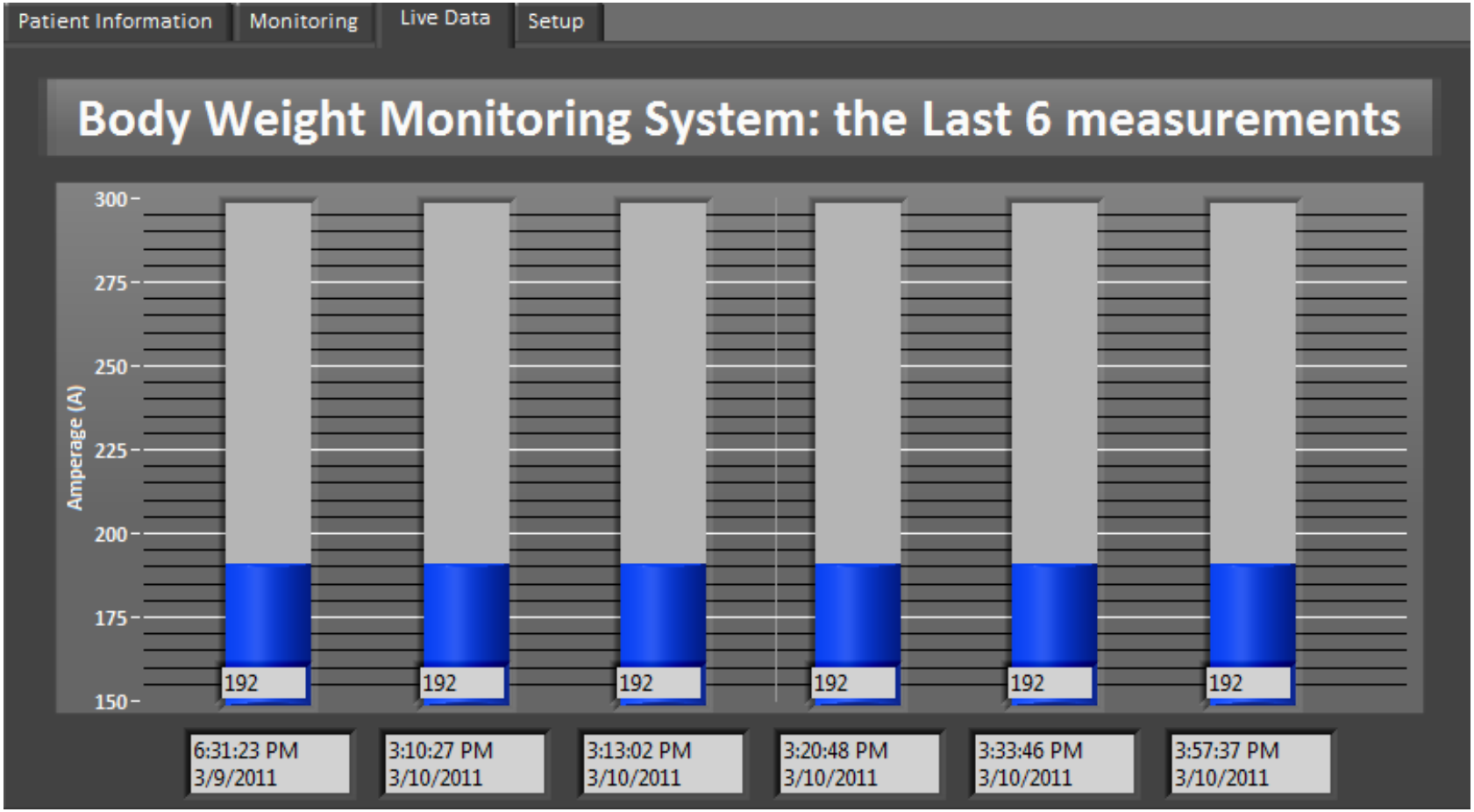
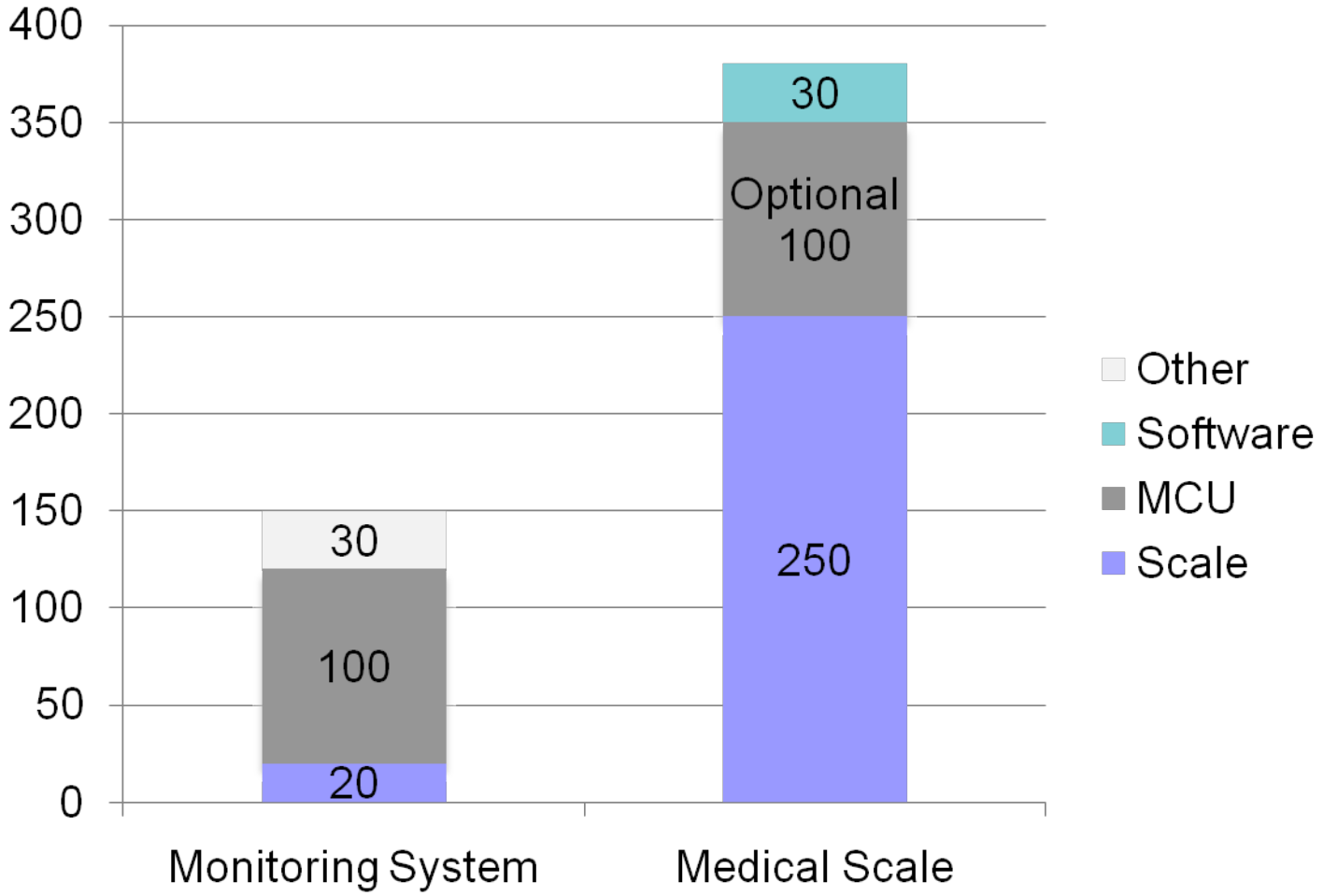


Comparison

	Body Weight Monitoring System	Medical Scale
High Accuracy	✔ ✔	✔ ✔ ✔
Cost	✔ ✔ ✔	✔
Output	✔ ✔ ✔ Serial & Ethernet	✔ ✔ Serial
Easy-to-use	✔ ✔ ✔	✔ Connection to PC required to update data
Data Management	✔ ✔ ✔ Manage data from multiple users on a server	✔
Customized Software	✔ ✔ ✔	✔ You can't change it

Cost Comparison



Future Works

- Add Email and alert function to the Labview program
- Allow the patient and the doctor exchange opinions
- Enable logging to add privacy
- Develop an algorithm to detect inconsistent or duplicated data
- Enhance this system to work with low-speed connection
- Collaborate with users from different departments

References

- [1] http://diabetes.niddk.nih.gov/dm/pubs/statistics/#fast
- [2] http://www.unmarriedamerica.org/column-one/7-17-06-solo-seniors.htm
- [3] http://www.caads.org/ltcdata/ltcdata/Sonoma.pdf

Contact Us:

Interested in Collaborating?

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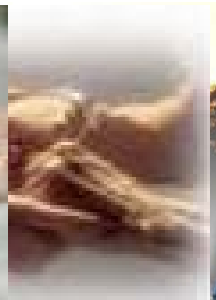
Department of Engineering Science

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