LACT-O-LOG

Pennvention – 2016 | University of Pennsylvania

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Pumped Breast Milk Management at Neonatal ICUs (NICUs) is an Inefficient Nightmare

Premature babies at NICUs are away from their mothers & fed from bottled breast milk by the nurses

Moms need to manually label bottles with Quantity of Milk and Production Timestamp

Nurses need to manually check-in the bottles with entries like Production and Check-in Timestamps, Expiry Date, Quantity, etc.

Before feeding the baby, Expiration Date needs to be checked for every milk bottle

Post-feeding, Milk Quantity Remaining needs to be updated and Available Quantity needs to be assessed

⚠ Manual re-entry of duplicate data

⚠ 10 bottles
≡ 45 mins to check-in

5 times a day x 10 bottles
≡ a set of very frustrated nurses

⚠ Human errors can cost lives - miscalculated/misread expiry dates

A Market of
5 different NICUs in just a 50 mile radius, 1000+ NICUs across US*

Interactions with Nurse Laura & Nurse Kelly, from NICU, Hospital of UPenn (HUP) led to the conception of Lact-o-Log during PennApps 2016.

A small Design Thinking session later, we felt an imminent need of automating the process

2nd Prize at PennApps 2016 - Judged by Kevin Hale, Managing Partner, Y Combinator

⚠️ Possible Competitors – "CareFusion" the barcode scanning system at HUP

Opportunity for strategic partnership (bundle our solution with their product)

Pilot Customer On-board

Hup Pumping Mom App: Lact-o-Log   PennApps x

Carpenter, Laura <Laura.Carpenter@uphs   Jan 28 (12 days ago)
to Nursing, Jessica, Laura, Lactation, Regina, Kelly, Kelley, me, carp1

Last week, Kelly Convery and I presented an idea for a HUP Pumping Mom App to a room full of hackers who attended the Penn Apps Hackathon. At the Hackathon, there were 200 student groups (1300+ hackers) representing 10 countries and 130 universities.   We presented an idea that would allow the mom to use an app in her phone to record her pumping, filter data to lactation consultants and nurses to monitor their progress, and automatically input data into a breast milk barcode system to assess inventory and even communicate via text with pumping moms – YES I SAID IT – NO MORE MANUALLY ENTERING DATES AND TIMES FROM ENDLESS BOTTLES OF PUMPED MILK!!!!

A group of Penn Students took on our project. OUR GROUP WON SECOND PRIZE!!! The Penn Center for Innovation and Learning is interested in working with the group to help us bring our idea/their project into full reality for our unit.

We are so excited to be able to work with the University on a Hospital born idea to improve the lives of the patients/families in our Intensive Care Nursery.
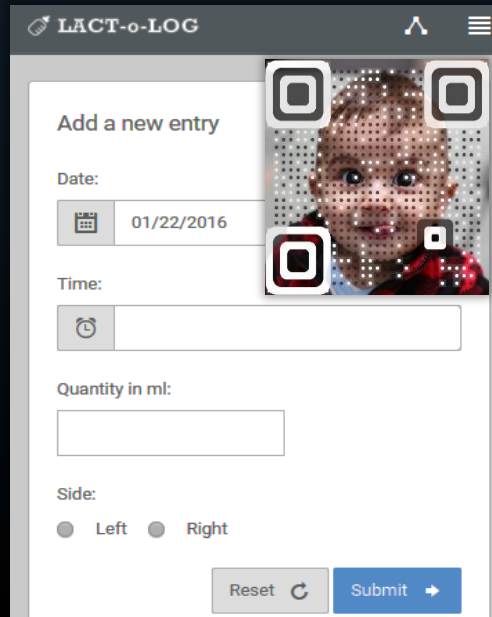
*http://www.aia.org/practicing/groups/kc/AIAB105694

"…Entering data just once is Great,
Entering no data at all is Heavenly…"

QR-code scanning + Web-interfaces + Self-measurement magic
10 Bottles ≡ 45 Seconds to Check-in

Designer QR-codes with your baby's face

R.I.P.
boring barcodes

Responsive UI and Cloud Database

Single source of truth served on multiple form-factors

Self-Measurement Sleeves for any bottle-size

Automatically updates the database with Quantity of Milk in the bottle

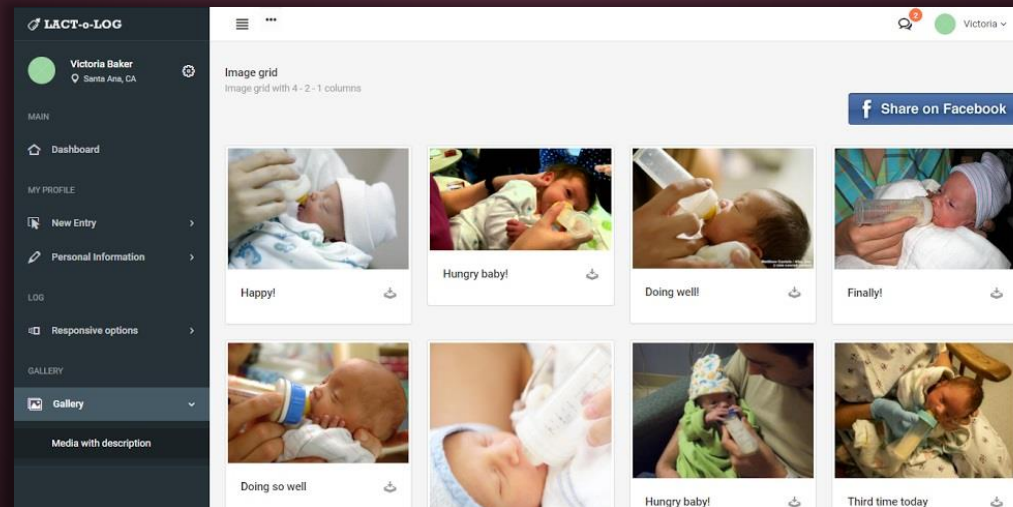# You can really do that? Mom's will love it !!

- Nurse Kelley

Nursing staff can efficiently manage the milk bottles while connecting Mothers to their babies -
a delightful experience for everyone involved

Notify mothers about how much milk to pump based on available quantity in the hospital

Notify nurses when milk in storage expires

Real-time updates for mothers when their babies are fed by the Nurse

Analyze (with Machine Learning algorithms) baby's milk consumption patterns and generate actionable insights for doctors on-the-go

A chance to improve the lives of
100 Nurses & 40 Mothers
at Penn's NICU
by Summer, 2016

"…if you can pull this off, many nurses
will be your best friends…"
- Nurse Laura

No Plan-B
(the team has decided to forgo summer-internships to deliver this application)

February
- Incorporate an LLC (in discussion with a law firm)
- Full-scale design thinking session with participants from Center for Healthcare Innovation, NICU Nurses, Lactation-consultants and our Board of Advisors

March
- Identify high-level product features and chalk-out product roadmap
- Plan pilot sprint and release backlog for Penn's NICU
- Identify and decide technology stack
- Finalize interaction & visual designs

Expenses
- Incorporation & Domain-name
- Freelance Designer
- Fonts, Icons & Templates
- Amazon Web Services
- Cross-platform technology stack (Smartface App Studio, etc.)
- Hardware supplies (Arduino, etc.)

April
- Complete two 2-week sprints – 75% front-end, 50% back-end dev for Pilot
- Improve hardware prototype for self-measuring bottle sleeve

May
- Complete two 2-week sprints – Dev-close with Unit tests
- Functional and Integration testing
- Complete hardware prototype

June
- Deploy pilot at Penn's NICU
- Monitor usage and conduct User-feedback sessions

July
- Publish pilot results
- Build strategic partnerships for furthering the market

Who are We?

Swathi Nayak

Pursuing Masters in EMBS at Penn, Bachelors in Instrumentation Technology

Proficient in Bio-medical signal processing and data acquisition

Skills: Hardware - design & development, Control Systems, Sensor-integration

www.linkedin.com/nswathi

Vidur S. Bhatnagar

Pursuing Masters in Robotics at Penn, Bachelors in Comp. Sc. & MBA in Human Resources

Youngest Product Owner at SAP Labs (2013 – 2015) - delivery and development of Enterprise Visualizations for Cloud-based products

Skills: Full-stack developer, Cloud Enterprise Applications, Product Management, UX, Hardware Interfaces, Data Visualizations

www.vidurbhatnagar.com

Advisory Panel

Domain-Expertise:
- Hospital of the University of Pennsylvania (HUP)
- Center for Healthcare Innovation, Penn
- Lactation-consultants, NICU, Penn

Business Expertise:
- Johannes Eichstaedt (Founding Research Scientist, World Well-Being Project)

- Professors from Penn (currently under discussion)

THANK YOU

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