From KickSmart to BabyLoop: Process Book

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Monday, January 22, 2014
Weekly Meeting, 1/22/14

After one week of familiarizing ourselves with the project, we feel that we can adequately profile the co-founders and most of the organization overall, but we are struggling in a number of areas.

First, and most importantly, we feel as though we have not been given a true issue statement with our project. We have been provided with a one-page summary of the potential market and the general technology being utilized in the sensor, as well as a two-page summary of the business plan put together by the co-founders. However, there is no direction or sense of where they are having issues and would like us to help. Without this, we are struggling to make any progress on the design brief, as almost all of the sections center on this issue statement.

Secondly, and this is contributing to the first issue, we have been unable to receive any response from our main contact point, Jennifer Boland. We are planning to speak to the professors today to see how else we may receive information, but we hope to gain any knowledge possible from a contact at the technology transfer office, LinkedIn profiles of the co-founders, and the information we were provided. However, without receiving any contact from the co-founders, we are unsure about how we will be able to proceed.

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To this point, we have come up with a number of questions to ask Jennifer/Brian/Jennifer when we do gain contact, as listed below:

- What kinds of issues are you encountering? How/where do you want us to help or advise you?
- What do you hope to gain from our involvement?
- What are you currently planning on doing this year to get into the market next year? What is your timeline like? What milestones do you need to hit?
- What is your general background? How did you get involved with this project?
- What are the general backgrounds of the other members? How did they get involved?
- What is the "mission statement" for this technology? What do you hope to accomplish with this device?
- Can this technology be used elsewhere? If so, why did you select fetal monitoring?
  - Do you that there is a gap/adequate need in this market?
- What are some more details about the technology? What are the specific directions for use? What is the output? How will this be interpreted by the users/mothers?
- What is the current expectation for customer experience? (what is this product like from the mother’s perspective)
- Do you plan to have this product be targeted towards in-home use, in hospitals, other? How do you plan to have this interact with/involve the physicians? (how to you plan to have successful clinical integration?)

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We also have a few questions for Dick, Kip, and Michael, as listed below:

- How do you advise us to get a response from our contacts?
- What if we do not receive any contact from the Kickstart co-founders before Monday?
• Do you have any direction for us regarding the issue statement? (from conversation, that may not be provided on the information sheets given)

At this point, we have a few goals for these upcoming weeks:
• Make contact with Jennifer Boland
  o Get an issue statement
  o Ask our questions--have a discussion about them
  o Set up meeting schedule (i.e. weekly, bi-weekly)
• Complete Design Brief (**Now due February 3**)  

**Monday, January 27, 2014**

**Competitors and some articles**

Home use devices
Fetal Beats
http://fetalbeats.com/
Baby Beat
http://www.babybeat.com/
Baby Watch
http://babywatch.co/
http://www.indiegogo.com/projects/babywatch--3

Clinical use device
Watch Child
http://www.hill-rom.com/usa/Products/Category/Workflow-and-Communications/NaviCare-WatchChild-Fetal-Monitoring-System/

Articles about fetal heart monitors

**Weekly Meeting, 1/27/14**

This morning, Tai, Jathin, and myself met and called Jen to make contact and hopefully gain more insight about the direction that we will be taking this semester. She had time to speak with us for a bit, and we all got a better understanding of the general position of the product. We made plans to meet on Wednesday morning to discuss the issue statement, but the following notes were taken during our discussion today:
• Although we are mainly working with Jen, she is working mainly with two students, Brian and Jennifer
• The concept of the product was brought up last year, and there are two possible paths for the product:
  o 1: Have the product be utilized in clinics, mainly by physicians
2: Have the product be utilized in home, mainly by pregnant mothers, perhaps with clinical integration, but mainly acting as a tool to help parents make better decisions

- Jen is having an important meeting today which will help determine the path of the product
- Ideal product launch would occur at the ABC Kid's Expo in Las Vegas (September 7-10), where many maternity and baby products are premiered for excellent visibility and exposure

Plans for Wednesday meeting include:

- Discussing and ideally receiving an issue statement
- Receive information or feedback regarding what the KickSmart team expects from us
- Discussing the questions we have regarding the company and product (see previous post)
- Ideally getting the opportunity to interact with the prototype, in order to better understand the user experience and product concept

Updates will be posted again after the Wednesday meeting.

Wednesday, January 29, 2014
Meeting Notes from Discussion with Jen, 1/29/14

This morning, we were fortunate enough to meet with our project contact, Jen Boland. We discussed a variety of aspects of their current situation, and I believe we all have a better understanding of where they are currently in their business, as well as where we as a team can fit in and be beneficial to them. Below are the notes from this morning's meeting:

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- What are you currently planning on doing this year to get into the market next year? What is your timeline like? What milestones do you need to hit?
  - Soft launch--ABC Kids, September
  - Minimum, robust prototype, ready to start shipping within 12-week window
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- Can this technology be used elsewhere? If so, why did you select fetal monitoring?
  - Technology background:
    - Working with Logisync
    - Started with submarines
    - Only one medical device
    - Other applications:
      - Trains
      - Prisons (toilet sensors)
      - Lots of other problems being solved with this technology

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Do you that there is a gap/adequate need in this market?

- Current baby market:
  - Wide range of products
  - Anywhere from ovulation algorithm apps ----> post-birth baby monitors
  - Enter with fetal monitoring, exit with baby monitors?
- Personalized wellness management during pregnancy being seen more and more
- Obese mothers/pregnancies...leading to more concern about baby's well-being
- At 25 weeks, recommended to spend 1 hour in morning and 1 hour in evening, count 10 kicks
  - Product could help with this, fill the hole of "awareness"
- "A decrease in fetal movement is the first sign of fetal distress"
  - Other signals, like HR, come later (too late?)

What are some more details about the technology?  What are the specific directions for use?  What is the output?  How will this be interpreted by the users/mothers?

- Can currently distinguish between mother's and baby's movement
  - Tumble/roll/etc to be determined
- If product is marketed as clinical device, patient would probably get information themselves (limited clinical integration)
  - "Clinically validated"
- From speaking with clinicians, they DO NOT want the data to be sent to them
  - Want a middle man in between (ALARE-Heart rate monitor)
  - Incorporating this middle man increases liability issues
- Does not currently fall under FDA jurisdiction
  - Diagnostic claims will affect this... as will marketing claims (23 & me)

Do you plan to have this product be targeted towards in-home use, in hospitals, other?  How do you plan to have this interact with/involve the physicians? (how to you plan to have successful clinical integration?)

- Two viewpoints/concepts for general application approach:
  1. "Fitbit for pregnancy", directly to end user
  2. Prescribed/clinical application, through the doctors

What is the "mission statement" for this technology?  What do you hope to accomplish with this device?
- Look at WearBio company—wellness mission statement
  - "safe, innovative wearable hardware, gorgeous mobile software..."
  - "Healthy pregnancy, reduce anxiety, in a clinically-validated, clever way"

- What kinds of issues are you encountering?  How/where do you want us to help or advise you?
  - Who will pay for this??
  - And how much?
  - Customer vs. end user

- Need to know:
  - Design features needed
  - Size of market
  - Cost analysis (range)

- Formal discussion/survey with end users & OBs & pediatricians & midwives
  - "Who are the key stakeholders in the land of mom & baby?"
  - See what they want (info, experience)
  - Would like to get ~50 OBs to agree on/average recommended/standard number of kicks/time period

- For consumer market:
  - Four main "market segments" considered at this point:

  1. "Worried well" patient [HIGH WANT]
     - Higher income
     - Via target/maternity store
     - Direct to consumer
     - ~4 million healthy births in U.S. annually

  2. Corporate Wellness
     - Productivity/wellness gain? (due to peace of mind?)
     - What does it need to look like?
     - Is it the same as a consumer needs/wants?
     - Different design features for corporate?
     - Drive cost down?
     - Concern for section 2: workers don’t want "Big Brother" for sharing data
     - Data sent to external source; anonymous?

  3. Payors (BCBS, etc)
- Promoted to pregnant customers to reduce payments?

4. Foundations (underserved/underinsured)
   - Sisters of Charity, March of Dimes, etc.
   - Get consumers to access point, since Dr. appts. may not be frequent
   - Work with charity groups, free/low cost clinics
   - Partner with baby product companies to make incentives to come to Dr.?
     - Pampers, formula, etc.
     - Needs more "ruggedness"
     - One-to-one charitable model to aid section 4? (think TOMS)

- Go to market strategy will be different for each segment
  1. What is the device communicating to?
  2. What needs to be communicated?
  3. What/who are the right partners?

- Design aspects will be different for each

- Get market analysis on four markets/segments

- High level on all four segments--deep investigation on one in particular

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- What is the current expectation for customer experience? (what is this product like from the mother's perspective)
  - "What does that user need to define a 'good experience'"
  - Compliance will be key to success
  - Current mother experience: "What the heck is going on?"
  - Sensors
    - Washable?
    - Wearable
    - Cost
  - Incorporation of overall wellness products
  - Partner with existing content developers
    - Help them sell more of what they have core competencies in
  - Fitbit-technology incorporation--find a similar partner?
    - "Powered by Fitbit"
  - Subscription to app--renew with new pregnancies?
  - New patterns/bands in colors
Other notes:
- Weekly meetings to occur Wednesday mornings, PBL #123
- JumpStart mentoring--Sally (American Greetings Interactions)
  - Good with user experience/design; recent pregnancy
- Good with user experience/design; recent pregnancy
  - Meet with her to go over high level assessments for 4 segments?
  - Tag along for future meetings?
- Current funding:
  - $50,000, Coulter
  - $10,000, Business school
  - $100,000-150,000, personal fundraising

Monday, February 10, 2014
Weekly Meeting, 2/5/14

High level market analysis

1. Direct to consumer
   - Market analysis
     - e.g. #s of pregnancies, Price?

2. Corporate
   - Wellness payers
   - Work days loss
   - Productivity

3. Payor
   - Reimbursement
   - Model (see the attachment)
   - Amount of money (% of GDP)
   - All research
     - Core source
     - Medical Mutual

4. NPO (March of Dime, Sisters of charity)
   - Mission statements (alignment)
   - Charity activities
   - What they do now?
Interviews
- Services with device
- Features of the device

1. Expecting mothers
2. Recent moms
3. Doctors (UH, Rainbow)
   - Data
4. Dads
5. (NPOs)

**Monday, February 10, 2014**

**Analysis of NPOs (potential partners)**

The March of Dimes Foundation

It was founded by then-President Franklin D. Roosevelt in 1938 to combat polio. It has since taken up promoting general health for pregnant women and babies. The March of Dimes provides mothers, pregnant women and women of childbearing age with educational resources on baby health, pregnancy, preconception and new motherhood, as well as supplying information and support to families affected by prematurity, birth defects, or other infant health problems.

http://www.marchofdimes.com/
http://www.marchofdimes.com/ohio/

- Mission statement
  - We help moms have full-term pregnancies and research the problems that threaten the health of babies.

- March for Babies
  - Established in 1970, the March for Babies, previously called WalkAmerica, is the largest fundraiser of the year for the March of Dimes.

Sisters of Charity Health System

The Sisters of Charity Health System was established in 1982 as the parent corporation for the sponsored ministries of the Sisters of Charity of St. Augustine in Ohio and South Carolina. The Sisters of Charity Health System is made up of five acute care, Catholic hospitals; three grant making foundations; two elder care facilities; and several health and human service outreach organizations. These ministries collectively continue and advance the work of the Sisters of Charity of St. Augustine, a congregation that since its founding in Cleveland in 1851 continues a faith-based legacy of high-quality, compassionate care for all of God's people.

http://www.sistersofcharityhealth.org/
• Mission statement
  o In the spirit of the Sisters of Charity of St. Augustine, our mission is to extend the healing ministry of Jesus to God’s people.

St. John Medical Center
  In a 50/50 joint venture with University Hospitals of Cleveland, the Sisters of Charity Health System also co-owns St. John Medical Center in Westlake, Ohio. The medical center is recognized for outstanding centers of excellence that include emergency services, orthopedics, pain management, women services and cardiovascular services, as well as unique services such as its Kidney Stone Center, Holistic Birthing Center and Balance Center.

Wednesday, February 12, 2014
Weekly Meeting, 2/12/14

Points of contact for primary research:
1. Direct Consumers
   o Expecting mothers (~4)
   o Recent mothers (~8 + international friends)
   o Fathers (~8)
2. Corporate Wellness
   o Case’s wellness program
   o Lubrizol’s wellness program
   o MaternaLink
3. Payors
   o Medical Mutual
4. NPOS
5. Other
   o Doctors/OBs
      • List of doctors (Jeshaune)
      • Various hospitals

Questions we have:
1. Expecting/Recent mothers
   o If you could have/see your baby’s kicks and movements every day, would it make you happy or less stressed about your baby’s health?
   o What price range do you think is reasonable for this product?
   o What technologies/sensor devices did/have you use/used during your pregnancy?
• What have your experiences been like with these?
• Why did you use these technologies in particular? (friend or doctor recommendation, etc.)
  o In general, for a sensor band, what features would you want? What would you not want? (what would keep you from buying it?)
  o How important is it to have a sensor send results to your phone? (tech/app integration)
  o Have you ever had a "scare" where you could not feel the baby move? What did you do in this situation?

7. Expecting mothers (specifically)
8. Recent mothers (specifically)

• Is there anything you wish you could have known/had when you were pregnant? (signals from baby, etc)

2. Fathers
  o What price range do you think is reasonable for this product?

3. Doctors/OBs
  o Is it important to track fetal kicks? Why?
  o What technologies or methods do you currently have pregnant mothers use for fetal monitoring?
  • How do you currently receive information/data from these? How would you like to receive it?
  • What kind of output do you receive from these? What would you like to receive?
  o Would you recommend this or a similar product to your patients? Why or why not?

Professor Update:

1. **What user research have you done this past week?** *(What have you explored? Have you talked with people? Immersed yourself in the sponsor's organization or customer/audience environment?)*
   o After developing our list of four main market segments, we are deciding to focus on the direct consumer market at this point; other markets may be explored more later in the semester.
   o We have developed a list of contacts and questions, to be acted on over the next two weeks.
   o Our meetings with Jen were very beneficial, and since there are presently inter-organizational issues, we are utilizing our talk with her as our basis for the organizational environment and goals.

2. **What have you learned? Based on your research, what are some initial insights? Have you given thought to how these insights might shape some preliminary product ideas or themes?**
We have learned a lot more about KickSmart and the various potential markets that we can pursue over the past few weeks.

Major insight would be that compliance is going to be key for this product to be successfully launched--the design features will be critical, and should be tailored to the market selected

- We must define a clear user profile for the market in order to tailor the design
- For example:
  - Mid-high income mothers: "sleeker" design, iPhone integration, more style options for band, higher price point, etc.
  - Low income mothers: more "rugged" design, additional output product (sub for iPhone)?, singular style, lower price point, etc.

Another major insight, is that the doctor's opinion will have a major impact on whether or not the device is utilized or recommended

- We must also cater to their design needs, particularly in relation to data tracking and sharing

3. **Do you have any visualizations** - e.g. mapping out the customer/guest journey, depicting the current state of the organization, mapping of patterns (i.e. "chunking") gathered from user research, what area of experience your team plans on addressing for the project, etc.

- Current state of the organization & team focus:
  - *Where green=completed steps, purple=in progress, and red=future steps; stars are where our team is aiding in their progress*

- Customer/guest journey--will be revisited after user profile is refined
- User research data chunking--will be completed after initial research completed next week
4. **What is your plan for the next week?**

   - Reaching out to personal contacts, having discussion with questions listed above, updating blog throughout process.
   - Going to hospital Monday morning for doctor/Ob nurse discussions
   - Individual creation of user profiles by team members--meeting and refining next week

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**Monday, February 17, 2014**

**Research Update, 2/17**

Fetal Health Surveillance..., Journal of Obstetrics and Gynaecology Canada

- "**Recommendation 1: Fetal Movement Counting**"
- "Daily monitoring of fetal movements starting at **26 to 32 weeks** should be done in all pregnancies **with risk factors** for adverse perinatal outcome”
- "**Healthy pregnant women** without risk factors for adverse perinatal outcomes should be made aware of the **significance of fetal movements in the third trimester** and asked to perform a fetal movement count if they perceive decreased movements”
- "Women who do not perceive **six movements in an interval of two hours** require further antenatal testing and should contact their caregivers or hospital as soon as possible.”
- "Women who report **decreased fetal movements** (< 6 distinct movements within 2 hours) should have a complete evaluation of maternal and fetal status..."
- "**Conditions associated with increased perinatal morbidity/mortality where antenatal fetal surveillance may be beneficial**”
  - Previous obstetrical history
    - Maternal
    - Hypertensive disorder of pregnancy
    - Placental abruption
    - Fetal
    - Intrauterine growth restriction
    - Stillbirth
  - Current pregnancy
    - Maternal
    - Post-term pregnancy (294 days, 42 weeks)
    - Hypertensive disorders of pregnancy
    - Pre-pregnancy diabetes
    - Insulin requiring gestational diabetes
- Preterm premature rupture of membranes
- Chronic (stable) abruption
- Iso-immunization
- Abnormal maternal serum screening (hCG or AFP 2.0 MOM) in absence of confirmed fetal anomaly
- Motor vehicle accident during pregnancy
- Vaginal bleeding
- Morbid obesity
- Advanced maternal age
- Assisted reproductive technologies

Fetal

- Decreased fetal movement
- Intrauterine growth restriction
- Suspected Oligohydramnios/Polyhydramnios
- Multiple pregnancy
- Preterm labour

- "Apart from some evidence that maternal perception of fetal movement may be beneficial in all pregnancies, there is no support for routine application of antenatal fetal testing in the management of uncomplicated pregnancies less than 41 weeks' gestation"
- "Antenatal testing in insulin-dependent or insulin-requiring pregnancies that are well controlled and otherwise uncomplicated should begin at 32 to 36 weeks' gestation"
- "Decreased placental perfusion and fetal acidemia and acidosis are associated with decreased fetal movements. This is the basis for maternal monitoring of fetal movements of 'the fetal movement count test'"
- "In high-risk pregnancies, the risk for adverse outcomes in women with decreased fetal movements increased" (mortality, IUGR, need for emergency delivery)
- "The frequency of extra alarms due to reduced movements was 3% in observational studies. In the case-controlled studies, the increase was 2.1%...Therefore, monitoring of fetal movements will increase the number of antenatal visits in pregnancy by 2 to 3 per hundred pregnancies"
- "The average time to achieve 10 movements in most previous studies was about 20 minutes. In this study it was 162 minutes."

Methods of fetal movement counting

- **Cardiff method:** Count 10 movements in a fixed time frame (12 hours originally, 6 hours [Liston] and 2 hours [Moore] as modifications)
o **Sadovsky method**: Count movements in a specified time frame (30 minutes to 2 hours)

  • "Optimally, the woman should perform the count in the early evening when she is lying down, tilted, or semi-recumbent."

• **Issues relevant for fetal movement counts**
  o **Gestational age**
    • Regular movements noted after 24 weeks
    • "Fetal movement counting...possibly should start at 26-32 weeks"
  o **Non-perception of fetal movements**
    • "Women perceived 87-90% of fetal movements. A small percentage of women do not perceive fetal movements."
  o **Optimal time for testing**
    • Evening is when activity is generally highest
  o **Position**
    • Lying down is ideal when counting movements
  o **Activity**
    • No correlation
  o **Food**
    • No consistent correlation
  o **Smoking**
    • Smoking will temporarily reduce fetal movements
  o **Drug effect**
    • Movements may be decreased by depressants and narcotics
    • "Antenatal corticosteroids may have the same effect for two days"
  o **Anxiety and stress**
    • No correlation

• "All studies, [with one exception], showed that **any of the methods** outlined above resulted in a **reduction of stillbirth rate**"

• "Therefore, counting up to six movements in a two-hour period offers short test duration, a proven track record, and a relatively low rate of alarm."
Instructions:

- Count the Kicks every day, preferably at the same time.
- Pick your time based on when your baby is usually active, such as after a snack or meal.
- Make sure your baby is awake first; walking, pushing on your tummy or having a cold drink are good wake-up calls.
- To get started, sit with your feet up or lie on your side. Count each of your baby’s movements as one kick, and count until you reach 10 kicks.
- Most of the time it will take less than a half-hour, but it could take as long as two hours.
- Log your recorded times into a kick chart.
- Instructional video

Recent Mothers

- Michelle, 29, mother of two (2.5 years, 3 months)
  - In progress
- Lisa, 40, mother of one (5 months)
  - High maternal age, previous miscarriage
• In progress
• Ann, 37, mother of three (6 years, 2.5 years, 1 year)
  • High maternal age, previous miscarriage
  • Completed
• Bethany, 36, mother of three (5 years, 1.5 years, 1.5 years)
  • Overweight mother, multiple pregnancy
  • In progress
• Sachi, 29, mother of one (2 months)
  • Completed
• Rie, 33, mother of one (10 months)
  • Completed
• Tomoko, mother of two
  • In progress
• Yuki, mother of one
  • In progress
• Aya, mother of two
  • In progress
• Yuki, 31, mother of two (1 year and 10 months, 5 months)
  • Completed
• Yukako, 31, mother of one (5 months)
  • Completed
• Kaori, 31, mother of two
  • In progress

Expecting Mothers
• Kim, 34, due end of February
  • Completed

Fathers
• Brendan, 30, father of two (2.5 years, 3 months)
  • In progress
• Ryan, 34, father of three (6 years, 2.5 years, 1 year)
  • Completed
• Justin, father of three (5 years, 1.5 years, 1.5 years)
  • In progress
• Jaime, 43, expecting father
  o Completed
• Hiro, 33, father of one (2 months)
  o Completed
• Seishi, 33, father of one (10 months)
  o Completed

**Nurses/OBs**
• Lisa Jacobs
  o Completed

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**Wednesday, February 19, 2014**

**User Profiles--Rough**

After discussing the various factors which will affect the user profile, we determined three main characteristics that will be of the highest level of importance/influence

• Rich vs. poor
  o Rich being defined as middle class or above
  o Poor being defined as below middle class
  • Middle class definition
  o These will affect their insurance access, the number of doctor's visits they have, and their access and forms of prenatal care

• Old vs. young
  o Advanced maternal age (AMA) defined as being 35 years old or above
  o Young defined as being younger than 35 years old
  • AMA definition
  o These will affect the risk level for the mother, as well as the potential amount of income, insurance, prenatal care, and user/design requirements

• Healthy vs. high risk
  o Healthy defined as not having at risk characteristics from article
  o High risk defined as having one or more risk characteristics from article
  • Article in reference
  o These will affect the prenatal care and doctor's visits required, as well as the user requirements

With these factors, we have developed eight preliminary user profiles:

1. Rich, young, healthy
2. Poor, young, healthy
3. Rich, old, healthy
4. Poor, old, healthy
5. Rich, young, unhealthy
6. Poor, young, unhealthy
7. Rich, old, unhealthy
8. Poor, old, unhealthy

After conducting user research, we will revisit these profiles, and determine whether we plan to select one in particular (or more), and work on defining the design and functional requirements for this user.

Saturday, March 1, 2014
Weekly Meeting, 2/25/14

Current Issues
1. No perceived value (Clinician + Recent moms)
   <Clinician's comment>
   Fetal well-being test is measured by following:
   • Baby heart beats
   • Muscle tone
   • Movement
   • Breathing
   • Amniotic fluid
   Total 10pts
   2pts each, from 8 to 10 = well being

2. Are we introducing a new fear? Stress?
   • Continuous monitoring = more worried

3. Team morale

Potential Solutions
1. Switch from MED. Device to consumer product.
2. If connected to doctor and doc can respond? Would docs want this?

How do we focus on the positive?
Increase Pleasure = Positive = Being pregnant
Decrease Pain = Negative = Worrying
Positive = A baby is growing inside you!
Saturday, March 1, 2014
Poster for the mid term presentation 2/26/14

Wednesday, March 5, 2014
Weekly Update--3/5/14--Updated Schedule

At our meeting today, our team agreed upon a schedule for the rest of the semester. We would like to complete all interviews soon, and are hoping to gain some technical insight from a few more doctors. We are all going to brainstorm potential features that we envision for the device, and will reconvene after Spring Break to consolidate and prioritize them. Then we hope to go through prototype design development, and at least one cycle of user feedback and revisions, to come up with a final product concept. After this, we are going to work on our presentations and posters for around three weeks, before presenting to the class, our sponsors, and potentially FlashStart. Our discussed gantt chart is below:
Wednesday, March 5, 2014

Weekly Meeting--3/5/14

- Presentation ideas
  - Prototype
  - App--actual or screenshots
  - Video (90sec-2 min)
    - Demonstrate connection between mom & baby
    - Show throughout life? Continuous app/product usage?
    - Pregnancy -> Baby -> -> Grown up (at wedding)
    - Use same song to connect throughout video
    - Think of Extra Gum commercial
    - "Focus on interaction of what this could be"
    - Show movement/dancing throughout--continue theme
  - General
    - Demonstrate range of product--look at studies for kinds of music?
    - Social media aspect
  - Utilize further Dr. interviews as technical advice

Wednesday, March 19, 2014

Desired Product Features

App:
• Mother user profile (customization?)
  o Name
  o Weight
  o Height
  o Where at in pregnancy

• Kick counter
  o Automatic upload

• Heart rate monitor (mother and/or baby)
  o Automatic upload

• Tracking capabilities (history)
  o Kicking
  o HR
  o Music

• Send to (SNS, email, to doctor)

• Music (our own, itunes, pandora, others?)
• Favorite button (for when they like the music)
• Upgrade for post-birth
  o Congrats, 2 weeks until birth!
  o Suggest next app
• Weekly pregnancy information

Band:
• HR monitor
• Kick counter
• Speaker for babies

• Stretchable material
• Multiple color options
• Washable
• Thin
- Light

- Bluetooth (sending music & kicks)
Sunday, March 23, 2014

Product Design--Lauren's Thoughts

For the app itself, I believe that a simple interface, with comprehensive data, would be ideal. I have created a mock up of the general app concept, as seen below:

When thinking ahead about how to make this product desirable post-partum, I was thinking of a few upgrades for the app and technology that could be incorporated, with features as listed below (initial thoughts--still working on developing post-baby features). The main, overarching feature, will be soothing and connecting with the child through music, so I believe that this is an important feature to keep present through any upgrades. Ideally, data can be kept throughout the app upgrades, so playlists and certain data points can be maintained. Another concept which I feel is important, is targeting the apps to both parents--syncing data so that both parents can access and be involved, which will help with bonding, as well as aiding in the appointment/health tracking. Could also be shared with babysitter, if desired, to help with bedtime.

- Baby (0-18 months)
  - Milestone tracker
  - Health/weight/size tracker
  - Dr. appointment tracker
  - Feeding schedule
Sleep tracker?
Baby monitor (with music playing--think like Jawbone)

- Toddler (18 months-4 years)
  - Milestone tracker
  - Growth tracker
  - Sleep aid/night light (with music playing)

- Child (4+ years)
  - Milestone tracker
  - Growth tracker
  - Sleep aid? Teddy bear with music?

**Tuesday, March 25, 2014**

**Product Design--Tai’s Thoughts**

I got a feed back from a recent mother. She said she will not use many functions even though these sound good to use. I agree with her. Our app should be simple. Now, I am thinking the following features.

Kicks/Movements Monitor
HR Monitor
Kicks/Movements/HR History
Music player
Baby's Favorite Music Ranking

I will mention three points which I think important to discuss.

First, I think we can leave the SNS connection. It will make our app too complicate but I assume people will not use so often. If we realize that we need that function, we can add at the update later. On the other hand, my friend said she wants to leave a memo when she records her baby's kicks/movements or HR. Second, I think we can simplify the profile registration. I believe simpler registration will decrease the barrier of usage. If we do not use the information of weights and heights for welcome page (information page), we do not need to ask for. Third and most important, I believe this app should have a smooth connection between playing music and recording kicks/movements or HR. Users should be able to start recording within our music player. Moreover, we need to think about how to connect other music player (iTunes, Pandora etc.).
Wednesday, March 26, 2014

Expectations of pregnant mothers from new fetal monitoring device

Based on our team's list of "desired product features" for a new fetal monitoring device, we decided to interview individuals and families about what services they expect from a new fetal monitoring device that they couldn't find in the existing products. I was fortunate enough to interview a friend and his wife who had a baby as recent as 6 months ago. During the pregnancy stage, the couple used to visit the doctor once a month. The duration of the visit increased as the day of delivery drew closer. At home the couple used a fetal monitoring device which helped them track the heart beat. By tracking the heart beat, they were able to identify the position of the baby in the fetus.

As I discussed the new potential product with the couple, I realized that most of the features they wanted was very similar to the ones we had discussed as a team. It was natural that ladies would want to use the band strap (device which monitors) as a fashion accessory. My friend’s wife mentioned that if the monitoring device was going to be a band, she would prefer having colorful choices with the band as she would want to keep wearing it through out the day including at work. For the same reasons she wanted it to be light weight, stretchable, and washable. She did mention that it would be beneficial if she knew how to interpret the data that the device might give out. She said she would not be overwhelmed with too much of data since she would love to know as much as possible about the baby. However, her only condition was she should be able to connect the dots. She wanted to know what each data including heart rate, number of kicks at different stages would mean to her. If the company making the product was able to explain the relevance of the data, she had no qualms about spending even up to $200 on the product.

As far as the app was concerned, she was not very keen on how its was presented as long as it was easy for her to use. She said information about her which would be the user profile would not be of prime importance to her since she would always have it in her mind. From what I could gather, she did not want the app to have too many options like Facebook these days. She wanted it to be simple with minimal controls so that she could get the best information possible about the fetus and the baby.

Sunday, March 30, 2014

4 Points

Problem (there must be consequences if nothing is done)

- No perceived positive impact

Insight/Hypothesis (small)

- Users don’t see the value, and we may create more stress rather than relieving it (opposite of company mission)
- If we shift away from this being a medical device, we will avoid creating stress, as well as providing more value
Idea/Theme

• Incorporate music to create a device that, through tracking kicks and movement, fosters a positive experience and relationship between a mother and her baby (mother to baby, baby to mother)

Significance/Purpose/Implications

• This device is filling an unmet need in the maternity market, by creating a comprehensive app, a high-functioning sensor band, and introducing the mother-baby feedback loop

Sunday, March 30, 2014

Rough Storyboard - Video Presentation

Wednesday, April 2, 2014

Comments on Color...

Based off of these reports for current and future color trends in consumer goods and the corporate world, we are considering using the colors of orange and green, with brown accents, for our new color palette.

Monday, April 7, 2014

Initial song choices

The Lake
https://www.youtube.com/watch?v=NDtBZV7HQS8

I Hope You Dance
https://www.youtube.com/watch?v=RV-Z1YwaOiw

A Song for Mama
https://www.youtube.com/watch?v=tap90z44WR8

Wednesday, April 9, 2014

Product name Brainstorming

Wednesday, April 9, 2014

End of Semester Timeline

- **Flashstarts Presentation Slides Due**: 12pm, Sunday, 4/13
- Flashstarts Presentation Runthrough: 9am, Monday, 4/14
- Flashstarts Presentation: 10am, Monday, 4/14
- Presentation document link: https://docs.google.com/presentation/d/1xzik63b70EsH5gtFyheZ-M17ESrRmDReMu1dMlYQy9M/edit?usp=s haring
- Poster work: 9am, Wednesday, 4/16
• **Poster completion & submission:** ASAP, Wednesday, 4/16
• Poster pick up: 5pm, Sunday, 4/20
• **Paper parts completed:** 11am, Saturday, 4/19
• **Paper formatted, completed, submitted for printing (10 copies):** ASAP, Sunday, 4/20
• Paper document link: [https://docs.google.com/document/d/1pY8OmFlh4CzEBr7Zq_OhHqfzcKmUvtumhWV1xpHjdJ/w/edit?usp=sharing](https://docs.google.com/document/d/1pY8OmFlh4CzEBr7Zq_OhHqfzcKmUvtumhWV1xpHjdJ/w/edit?usp=sharing)
• Video Filming/Editing:
• **Final Presentation Slides Due:** 7am, Monday, 4/28
• Final Presentation Runthrough: 8am, Monday, 4/28
• Final Presentation: 9am, Monday, 4/28
• Presentation document link: [https://docs.google.com/presentation/d/1xzik63b70EsH5qtFyheZ-Ml7ESrRmDRMU1ldMIYQy9M/edit?usp=sharing](https://docs.google.com/presentation/d/1xzik63b70EsH5qtFyheZ-Ml7ESrRmDRMU1ldMIYQy9M/edit?usp=sharing)

**Wednesday, April 16, 2014**

**Weekly Meeting--4/16/14**

We discussed about coming poster session. The following picture shows the image of our poster.
Friday, April 18, 2014
Discussion Poster Layout
We discussed how to deliver our information appropriately on the poster.

Saturday, April 19, 2014
Flashstart Presentation 04/14/2014
Monday, April 21, 2014
Poster session 04/21/2014

Thursday, April 24, 2014
Meeting with Dick--Lauren's Notes

1-what is the problem?
2-detecting problems originally, but we see a positive aspect--by **enhancing the quality of pregnancy**
3-how do you do this:
4-what is it going to be?: wearable device for pregnant mothers, that gathers information about the fetal movement in a comprehensive app, which delivers heart rate and fetal motion, combined with music to create an enjoyable experience for the mother throughout the development of a fetus
5-significance: create emotional satisfaction in parents as their fetus develops, serves as a high-functioning monitoring device (technology & emotions)
Risks: market risk: crowded market; careful to mitigate risk of responsibility through problems (lawsuits, negative experiences...)

Poster:
-problem working on
-recording two kinds of data, how it is communicated
-significance

"plateaus of understanding"---> significance

Sunday, May 4, 2014
Revised App Design