Meeting 10/2

Justin, Jordan, Nick

* Decided our temporary project name is “seniorprojectbym”
* Decided to use iBeacon protocol, since our estimotes don’t support Eddystone EID
* Plan to have short stand-up meetings on Thursdays after class
* Estimotes arrived last Wednesday. Distributed a couple to each of us.
* Will discuss Sternheimer next Monday, once we have code written and can make timeline.
  + Will make timeline/milestones next Monday.
* Agreed to really emphasize good code style + documentation. We’ll discuss testing as needed.
* Discussed results of Sprint ‘0’ - Jordan played with some iOS GUI, Nick did Android bluetooth.
* Picked user stories for first Sprint (see To Do below).
* Discussion about beacons: Not sure how pairing and other processes work on Estimote.   
  Nick very interested, wants to figure out sooner than later.
* To Do:
  + Submit status report - Justin
  + Push iOS and Android projects to Github asap, so we can all work with common repository.
  + Justin: Sign-in user stories
  + Jordan: iOS scan all nearby BLE user story
  + Nick: Android scan all nearby BLE user story
  + Research how estimote tags work, exactly, and talk again on Thursday to plan.

Meeting 10/3

Justin, Jordan, Nick, Dr. Bulut

* Dr. Bulut helped Jordan finish setting up iOS IDE.
* Showed Dr. Bulut Nick’s Android app with bluetooth scanner.
* Agreed to have a prototype with features in 2 weeks.
  + Will meet next week as necessary.

Meeting 10/5

Justin, Jordan, Nick

* Concluded Estimotes are locked into their SDK for any write-access.  
  Will not be sufficient for all of our requirements, and we’ll have to order additional beacons.

Meeting 10/10

Justin, Nick

* Meeting yesterday was canceled because Justin was sick.  
  Jordan was unable to make the impromptu meeting moved to today.
* No meeting with Dr. Bulut this week, as nothing new to discuss.
* Agreed to have extended meeting after class Thursday.
* Justin will draft Sternheimer proposal to review Thursday evening.
* Nick wants to prioritize selecting and ordering new beacons, now that we’ve realized Estimotes are locked into their SDK for any write-access.
* Will continue working to have initial prototype for next week.

Meeting 10/12

Justin, Jordan, Nick

* Reviewed draft Sternheimer proposal that Justin wrote.
  + Dr. Bulut received a copy the night before. He replied suggesting to add line discussing barometer feature (use barometer to determine altitude of observation).  
    Group decided not to. That feature is on ‘wish list,’ not a core feature.
  + Nick wanted to change language on security and encryption features.  
    Led to lengthy discussion, where Nick recalled our dilemma of decentralized, untrusted server vs. ability for user to use two different phones.
    - Eventually, we voted and decided to leave the section unchanged.
  + Each of us signed.  
    Justin will ask Dr. Bulut to sign in the morning, submit before deadline at noon.
* Jordan is still having trouble testing iOS app, since he doesn’t have an iOS device.  
  Says he will ask Dr. Dahlberg if Capstone has any available, and ask Dr. Bulut if he has any.
* Justin still having trouble developing for iOS.  
  But, has gotten sign-in activity running on Android.
* Nick and Jordan plan to have prototype Monday: Scan for BLE nearby when app is open, keep observations in memory, display last observed time and locations of all tags ever seen.
* Security: After Nick recalled security vs. 2-phone feature issue, the following resulted:
  + Justin would prefer the security feature over the 2-phone feature regardless, as that’s the feature that Sternheimer would seemingly care about. And, as we’ve found, Tile is also limited to 1 phone. So, we would be no worse.
  + Nick prefers additional features. Believes users don’t prioritize security (which we all agree is true… even if it’s not ‘right’).
  + We might have to continue this debate, and discuss with Dr. Bulut
  + BUT: Jordan offers possible solution.  
    Similar to, for example, Apple’s FireVault Recovery Key, we could present user with a (long) recovery key at registration that they should write down and store.  
    We will store their private info, needed in case of login to second device, in cloud, encrypted with this recovery key.  
    This way, server still cannot read their data, but they have a (semi-difficult) means of recovering!!
* In class: Dr. Dahlberg offered to contact last year’s BLE team and ask what tags they used (to replace their Estimotes)  
  *Update 10/13:* He says they used Estimotes. Says he has contacted them to see if they’d exempt us from the 20 beacon cap.

Meeting 10/16

Justin, Jordan

* Nick was unable to attend due to illness.
* Justin tried working on iOS dev yesterday, using <https://www.macincloud.com/>   
  But, that solution won’t work long term; it costs money. And, Virtualizing Mac OS on Windows didn’t workout.
  + Justin asked Dr. Bulut for card access to the Mac lab.  
    *He granted access later that day.*
* Jordan used Justin’s iPhone to test his app (Jordan doesn’t have an iPhone).  
  Things worked correctly.
* Summary of Justin’s work: Completed sign-in/sign-out on Android.  
  Began work on iOS, but didn’t complete.
  + Jordan helped at meeting, showing Justin how iOS UI is developed.  
    Justin hopes to complete the sign-in feature soon.
* Summary of Jordan’s work: Produced app that can scan for nearby BLE.
  + Hopes to, tonight, store most recent time and location of observations.
* Still hope to review Nick’s progress tomorrow at meeting with Dr. Bulut.
* Jordan talked to Justin about how to better communicate/manage team in the future.
* Jordan and Justin chose to standardize the UUID on all tags to D0D3FA86-CA76-45EC-9BD9-6AF4F6016926 and changed setting in Estimote cloud.  
  Now, we can filter to just *our* tags.
  + We will use Major and Minor fields as the identifiers
* Jordan and Justin discussed security & usability solution from last time. Still need to finalize decision with full group.
* Justin listed important features for *minimum prototype* for the Fall semester. Jordan agreed.
  + **Log in/Log out**
  + **Pair devices/Unpair devices (i.e. device remember’s IDs of particular tags, has GUI for user to manage)**
  + **Scan *passively* for *VCU* beacons. Stores recent observations locally.**
  + Batch upload observations to server
  + Server manages uploads, keeping most recent.
  + When a tag is lost, user request records from server
  + Server responds to record requests. (giving reports back to correct users)
  + Device displays reported observations of tags.
  + White-listed/authorized users should be recognized at sign-in.
  + Server should provide heatmap info to authorized users
  + Device should display heatmap for authorized users.
  + Server should receive observations from static observers including precise location info
  + Devices should display additional info provided by static observer observations
* The bolded items above should be our next focus (discussed by Jordan and Justin).  
  Agile: Have a local app working. Then work on a networked app.
  + Jordan plans to discuss next steps with Nick sometime this week.
  + Justin will be busy this week. Agreed to assist with whatever plan Jordan and Nick decide on beginning this weekend.

Meeting 10/17

Dr. Bulut, Justin, Jordan, Nick

* Demoed progress on iOS and Android apps for Dr. Bulut
  + Nick had all the features we’d discussed: Scans for any BLE in range, saves timestamp and GPS coordinates of last observation to memory, displays on screen with device’s UUID.
  + Jordan could display all BLE tags in range.
* Nick mentioned he needed to work on merging his Android progress with the sign-in screen I had added.
* Dr. Bulut asked to be added to our Github.
  + *Justin added him to Github, Firebase, and google drive*
* We discussed buying a used iOS device
  + *Justin emailed Dr. Dahlberg if Capstone has any already. Still waiting on reply.*
  + Dr. Bulut said we can order one if needed off of amazon.
* We discussed that Estimotes will be limited, due to paid SDK.
  + Agreed that eventually will need to buy new beacons.  
    Should begin looking.
  + But, the vast majority of features will not require write access, and so we can continue development until then.
* Dr. Bulut says he would like us to increase the pace of development.  
  For next Tuesday, he would like:
  + Ability to pair & unpair tags - where pairing means that your device will remember a particular tag’s Major and Minor and only track that tag.
    - Will require a usable GUI
  + Filter all scanning to just devices with our UUID.
  + Display observation information using a map
  + -- Need to finish implementing sign-in on iOS
* Nick mentioned that the group still does need to agree on plans for cloud design.
* *Afterwards:* Justin suggested that Nick and Jordan coordinate on a common file format.

Meeting 10/23

Justin, Jordan (via skype), Nick

* Progress:
  + Nick:
    - Integrated Justin’s Sign in code
    - Pair and unpair is working, but not persistently (forgets when quit)
    - Still need to do map, and file storage
    - Still need to filter by uuid
    - Have some passive scanning, still need to make automatic (i.e. work even without user opening the app to start it)
    - -- Nick says he’ll be finishing the persistent pair/unpair tonight, and possibly getting a map working
  + Jordan:
    - Cleaned up GUI from last time
    - Not much else yet. Might have pairing by tomorrow, might have pairing storage by tomorrow.
      * Said it’s been a busy week. Will catch up.  
        Emailed Dr. Bulut to let him know that deliverables won’t be ready Tuesday.
    - -- Jordan says he’ll work on finishing a little more for tomorrow.
  + Justin: No progress, also busy.
* Decided on deliverables for next Tuesday (which we’ll confirm with Dr. Bulut tomorrow)  
  (this includes tasks due this Tuesday, which we are behind on)
  + Sign in / sign out iOS - JY
  + Order new beacons? - JY
  + Order an iPhone? - JY
  + iOS and Android: Filter scanning based on UUID - J,N
  + iOS: Pair / unpair - J
  + iOS and Android: Be able to name my tags - J, N
  + Android and iOS: make pair/unpair persistent (file storage) - J,N
  + iOS and Android: Store observations persistently. - J,N
    - GPS location, timestamp, Major, Minor
    - Only for our beacons.
    - Just append everything.
  + iOS and Android: Display map - J, N
    - Pick a tag and display observations for that tag
    - Display the most recent observation
    - Map screen is static once you open it (have to reload screen to reload more recent observations)
  + iOS and Android - passive scanning - J, N
    - Should be automatic, with as little input from user as possible
  + Batch Upload observations to server - JY
    - Need to define schema (and design)
* Nick wants to ask Dr. Bulut: Will static observer hardware need to be implemented in the Fall, or just software?
* Decided to push, until later iteration:
  + Pruning our local storage file every once in a while to most recent x observations.

Meeting 10/24

Dr. Bulut, Justin, Jordan, Nick

* Does static beacon hardware have to be completed this semester?  
  Dr. Bulut: No. Just have software ready.
* Justin will contact Dr. Bulut about ordering new beacons and an iPhone
* Jordan should come in on Thursday to meet with Dr. Bulut and demo past-due features
* Will work to ‘pick up the pace’

Meeting 10/26

Justin, Jordan, Nick

* We were chosen as finalists for the Sternheimer!
  + First deliverable due Monday the 13th.
  + Signed up for presentation times.
  + Will discuss more at next meeting.
* Making progress on iteration.
* Jordan’s meeting with Dr. Bulut went well.

Meeting 10/30

Justin, Jordan, Nick

* Justin found cheap/prepaid iPhones. Both 6 and SE.  
  Decided to order iPhone 6.
* Decided it would be convenient to use a beacon manufacturer with an SDK, because SDK will provide better battery management than we could!
* Talked about privacy concerns with static observers
  + Eventually, when constructing the hardware, will have to remember that the server should not be able to know which reports came from a particular static beacon. Otherwise, users can be tracked.
* Jordan finished with pair & unpair beacons and filter UUID
* Nick still working. Not much progress to report yet.
* Jordan helped Justin this morning with iOS sign in.
  + Justin will finish sign out this afternoon.

Meeting 10/31

Dr. Bulut, Justin, Jordan, Nick

* Jordan had issues merging his features with the sign in/sign out. Will have to resolve later.
* Dr. Bulut says iPhone order looks fine. Will submit.
* Asked Dr. Bulut about suggested dress for Sternheimer: Suits
* Nick and Jordan demoed progress. Met goals, more or less (i.e. we have features, but will need to clean up implementations later and make sure implementations robust)
* Dr. Bulut says we need to clean up the GUI, making iOS and Android versions more similar.

Meeting 11/2

Justin, Jordan, Nick

* Picked to do items for Monday.
  + Justin: Sternheimer and beacons
  + Jordan and Nick: Clean up GUI, upload, download
    - Jordan: merge iOS sign in
* Nick and Jordan discussed GUI, to give both apps a similar look (see attached picture)
* 