CS 480

Client Interview 2 – Product specification follow up

Date: 9/19/2019

Start time: 2:30 pm

End Time: 3:30 pm

Members present: Nikolai, Tyrel, Zane, Dr Shovic

Agenda: Started writing up the product requirements specification document using the template required. This has brought up several questions to bring up with the client to obtain more information about the Garage Sensor System.

Before Interview Began

Possible team names

* Open space (CdA)
* Open spot
* Open parking
* Spot Finder
* Park-IT-CdA
* Park-It-spot(s)
* Spot-CdA
* Spot-Find-CdA
* Parking-CdA
* Park-sense
* Park-detect

Interview

Language in specification document – must, will, should how do we use these words in it?

Must/should are requirements that have to be in the project

Will suggests something that is optional

Permission for project and to visit the garage and not be asked to leave by security.

John is working on this.

Physical Unit (Mechanical Requirements)

Are there any requirements for the physical appearance of the unit?

Black box, metal/plastic/wood housing, with LEDs and sensors sticking out. Or just have the electronics on a board and then house it in a faux camera cover provided it won’t interfere with sensors and LEDs?

We can make use of 3D printers to create what we want.

Gateway – what exactly is this and what does it need to do?

The gateway is the master sensor unit. Transfers data to the server. (I was interpreting this differently, as a router/home gateway located on the Den roof or something – Nikolai)

Environment

Water vapor, smoke, dust, oil is going to potentially get into the unit and interfere with the exposed sensors. E.g. a splatter of oil ends up on a photoresistor, or the LED indicator. Are we expected to have the unit function for a full year with no maintenance on top of running on battery?

Water vapor and dust could also get inside the unit. Goes back to the physical requirements – aim to build a dust-tight, water resistant housing? The faux camera cover everything and protect it from stuff up coming from below.

Operating temperature – aim for the extremes - -20 F to 120+ F (-30 C– 50 C).

Waterproof at least

Make assumptions about the unit getting dirty, e.g. it will run maintenance free for one year and will be cleaned when the battery is replaced

3D printed box could work for this

Industrial temperatures (-40 to +85 C)

Simulation

Will each unit need to be able to know where it is relative to the garage. If we install one on the ground floor in the first parking spot, should we have an identifier for level 1, park 01?

Discrete event simulator – use a package that exists, simulib, event queues, Display, web-based display for remote access, possibly to an app.

The implementation of how to provision the units is entirely up to us. Some ideas include having each unit with a unique ID, which the simulation is then configured to know that GSU1 is located on third floor, stall 5 for example.

Production requirements – do we need to worry about this – estimate annual production and cost per year?

Ignore this part for now

Other things that came up in the interview

Mesh networking – try radio head, probably most complex part of this.

Reporting frequency – as often as necessary once per second to 1 hour as appropriate to function correctly.

Sensor interrupts the system to wake up the unit – power saving

Receiver that listens for wake up signal – less power than a transmitter

Wake everything up at the same time?

OTA updates?

Mounted toward the front of the stall so that the LED can be seen.

Get PCB manufactured if needed