COVID-19 & IOT Round Table
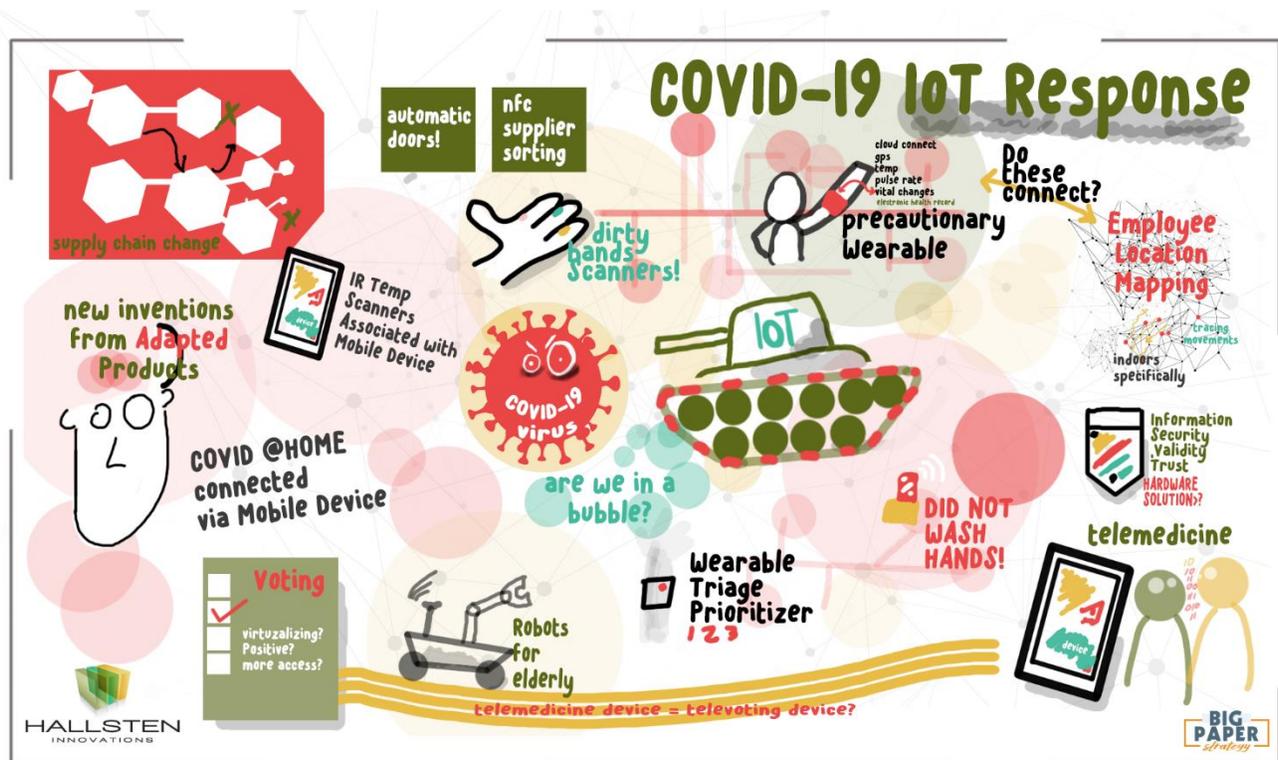
Facilitated and Moderated by **Hallsten Innovations Ltd.**

Summary

The Hallsten Innovations (HI) facilitated COVID-19 & IOT round table discussion included over 60 participants, representing IOT industry and related COVID-19 stakeholders from around the world.

The HI team included Jon Hallsten (CEO) as the moderator, HI lead from our Chicago office (Gregg Bieser), HI lead from our UK office (Andrew Chilcott), and Matt Orley (Illustrator) who captured a snapshot of the event graphically (see the COVID-19 IOT Response graphic below). Additionally, here are links to the post-event outputs: Slide Deck -> here, Video Recording -> here.

The conversation started with HI team intros and ground rules. HI further explained why we were passionate about hosting the event and that our intent was just an *initial kickoff* to more granular interactions with interested participants going forward.

From there we took a top down perspective, discussing macro-level societal and tech level changes as well as anticipated trends (i.e. the **"next normal"**) paralleling other world changing events through the history of humanity. HI also referenced a McKinsey & Co COVID-19 global response business leadership article (here) about the 5Rs (Resolve, Resilience, Return, Reimagination, and Reform).

Lastly, and most importantly, we opened the round table soliciting insights from attendees related to their own perspectives before starting the discussion of specific napkin ideas. In total 14 different napkin ideas were presented by 13 different participants. Many of these were medical in theme but also included concepts in remote voting, robotics, asset tracking, and the importance of psychological security.

HI Macro-Level Observations

Societal

1. Shift to the "less" risky...

2. The importance of "personal touch"

3. Shifted investment to "important things" of life

4. Less individualism / less independence / less freedom

5. Mega shift to virtual on-line services

6. Healthcare, religion, restaurants, & education will forever be changed

7. Reshape of global political and economic relationships

8. Less dependency on "critical" foreign manufacturing

9. New forms of reform

10. Shift from the urban to more rural

11. Baby boom???

HI Summary -> We see **SIGNIFICANT** societal changes...

Technological

1. More, more, more tech

2. Cloud providers are going to be a huge benefactor

3. A boon for cloud connected stuff (i.e. IOT!)

4. A healthier / lower cost digital lifestyle

5. A boon in virtual reality

6. Faster adoption of 5G

7. Remote monitoring more important than ever

8. Security more important than ever

9. Environmental consciousness will accelerate

10. Significant opportunities in disrupted industries

HI Summary -> Many tech trends will **ACCELERATE**... and *new* tech opportunities will develop, especially in the *most disrupted industries*.

Key Video Timestamps

3:01	HI Team Introduction and our Motto, Passion, and Focus
17:04	Start of HI's Social & Technological Macro-Level Observations
25:50 | Napkin #1 | John K.	$5 MEAL MOBILE APP How to be thrifty and resourceful on a tight budget to make a nutritious / healthy meal

36:38	Napkin #2	Jonathan L.	CONTACT TRACING SYSTEM twitter | cellphone location data | tracing interactions | adapt to hospital | keyfob for each employee | location of employees | hospital overwhelmed
39:03 | Napkin #3 | Natasha P.	REMOTE VOTING AND ROBOTICS revolutionize how we vote | congress red tape cut | transparency & communication | blockchain | supply chain is gigantic
43:00 | Napkin #4 | GS P.	ROBOTICS IN HEALTHCARE not involved with industry | equip homes of elderly for independence of residents | track workers coming in | elderly at home realizing separated from family up for safety | "I've fallen, and I can't get up"
44:15 | Napkin #5, #6 | Chris M.	IDEA #1: POST IT Minimize contamination at doorways | circular knob IDEA #2: NFC enabled tech for receiving medical shipment | unvetted suppliers | plus/minus
46:25 | Napkin #7 | Dave B.	GLOBAL ASSET TRACKING LPWAN network | as resources needed in diff countries | logistics tracking nightmare | indoor tracking & human tracking | lots of work on
47:50 | Napkin #8 | Andrew C. @ HI	SIGNATURE MONITORING TV news | cameras | increased temp monitoring via infrared | identified with

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	existing device info | privacy issues
44:15 | Napkin #9 | Jeanne D.	IOT BASED CONSUMER TEST KIT BT connectivity to mobile app | quick in-house consumer-grade test | have C19? Contagious? Immunity?
51:10 | Napkin #10 | Pierre T.	CONSUMER ARM BAND TO ASSIST WITH COMPLIANCE AT RISK during and after epidemic | precautions & awareness | office, travel | wearable | sensors to check IMU (hand washing),
55:33 | Napkin #11 | Colleen S.	HAND SCANNER FOR CONTAMINATION brainstorming new applications and use-cases | instantaneous light detection | wheels turning | New York startup
56:58 | Napkin #12 | Eric L.	LOW COST WEARABLES IN HOSPITALS not involved in healthcare logistics | read in papers | patient wearable to triage care | at home or in hospital | vitals driven | wireless
59:15 | Napkin #13 | Secret L.	BATHROOMS IN HOSPITALS -- HANDWASH COMPLIANCE lock door until hands clean | alarm with "shame" factor | finger O2 sensors | infrared for temp (security cams)
60:01 | Napkin #14 | YC W.	TRANSMITTING INFO -- SECURITY AND SOURCE OF INFO trust in the information | whoever is presenting info to "judgment systems" --

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	information WORTHINESS | bad guys sewing distrust | information security & validity | must be a hardware solution

Next Steps

Thank you for participating and for sharing your napkin ideas!

Please note that we'd love to hear from you. We plan to hold additional events going forward and would like to get your feedback so that we can improve the experience going forward.

If after participating first-hand, watching the video recording, or reading this summary, you'd like to talk to HI or one of the other participants on the call, we're happy to connect the dots and make that happen.
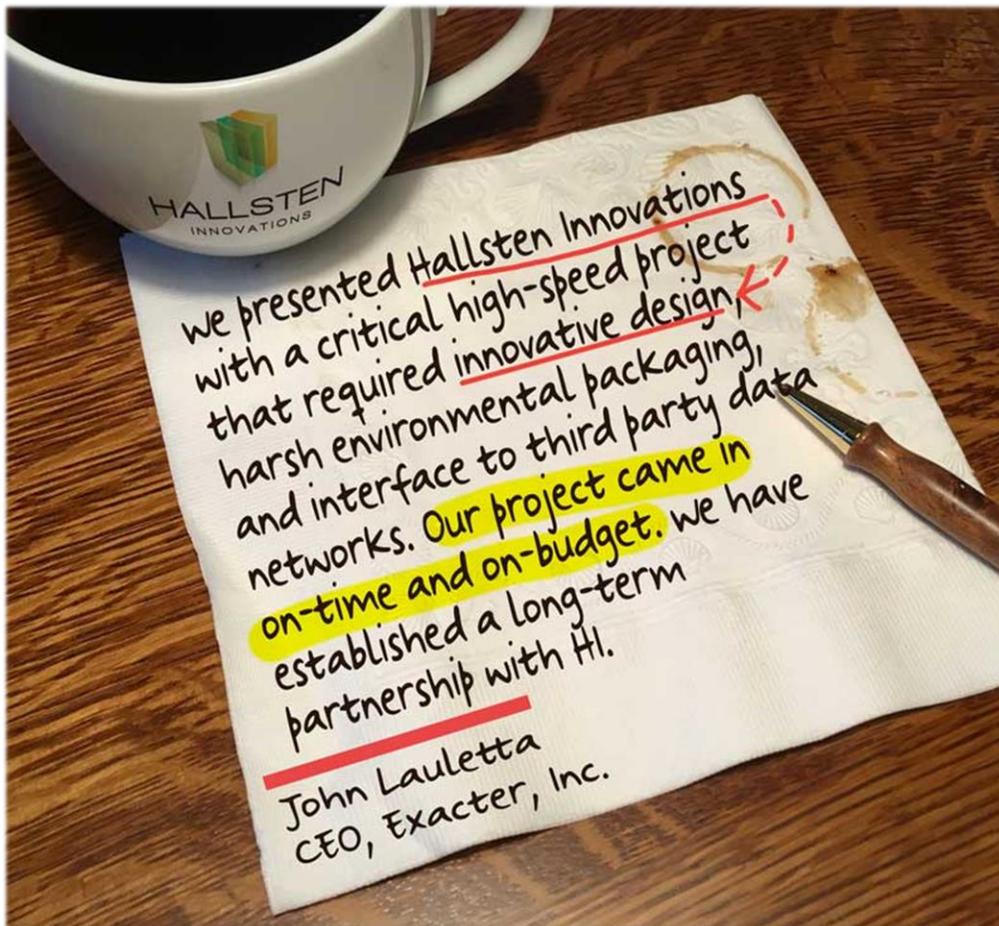
If there are any napkin ideas you didn't get a chance to share please feel free to send them to us via napkins@hallsteninnovations.com.

Disclaimer

This document contains a summary of an HI facilitated virtual round table event and does not take into an account any analysis or professional services associated with an official paid engagement. The views and/or napkin ideas of the participants shared during the round table are not necessarily endorsed or supported by HI.

About Us

Hallsten Innovations is an IoT focused custom electronic and software solutions company. We have offices in Ohio, Chicago, and the United Kingdom with a talented team of 15 resources. Our team leverages core competencies in industrial design, mechanical design, electronic design, sensor design, power design, embedded software, wireless communication, and mobile app/cloud implementation to achieve *predictive* data analytics and *advanced diagnostic* monitoring goals of our clients, often in harsh industrial / outdoor environments.

Why Us?

1. **We are a hands-on, owner-led organization.** Or, said another way, our owner's last name is literally in the company name and he plans to keep HI's great reputation intact ensuring personally that things get done right - no matter what it takes. We embrace the motto "Innovators who get things done right".

2. **We are an unapologetic user-centric design house.** In fact, we are so passionate about its important that we have given talks and written about it which can be found <u>here</u>. We have proven over time that that user-centric design is good business and place *significant* emphasis on it. Nothing makes us prouder then when our client's well-designed, user-centric solution resonates in the market.

3. We have a **multi-layered depth** that is realized with deep skills, a deep resource bench, and a deep commitment. Most importantly, all of this is **wrapped in a proven development process** or as we like to say, "It's **HOW** we do it" that is critically important (see section above). Our process includes (above and beyond typical project management tracking) doing our homework before forging a design path, always keeping the big picture in mind, iterating fast with agility, and keeping the end users engaged throughout with an eye for constant user-centric improvement.

4. **We are thrilled to get involved at the early napkin stage of an idea or solution.** *Why?* Well, first, because we love having a front seat view in seeing an idea developed into an end-to-end solution that makes the world a better place (see blog and video <u>here</u>). However, *secondly*, and arguably even more important from a client perspective, the idea is early enough so that we have an opportunity to speak into it and make it even better through HI's experience, innovation, and best practices.

5. **We are a team player who understands the importance of "WE".** No one has a monopoly on good ideas - the best solution will be the collective brainchild of numerous

talented team members with varied backgrounds, life experiences, passions, and insights… professionally discussing and listening to each other with respect.

Lensing Your Idea through our Development Philosophy

Many design houses will tout their ability to serve up turn-key products on a silver platter with deep technical expertise. But when, as is the natural tendency, design resources rush headstrong into a project, they run the risk of losing sight of the big picture… which often results in budgets / timelines being missed and ultimately the end customer not being delivered an optimal solution.
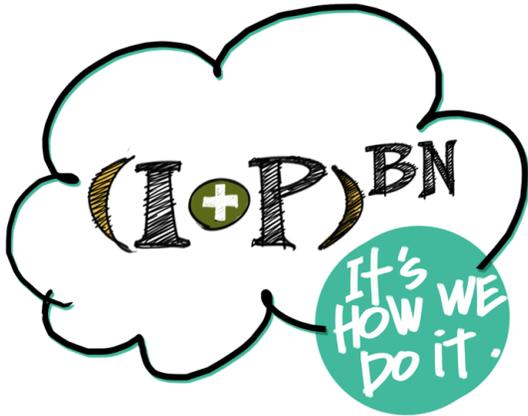
It's How We Do It…

What separates us at HI from others is **HOW** we go about product development. We have a prescribed process methodology.

The HI iterative development process first goal is to place a working prototype into the hands of you and *your* customers *as early* and *as fast* as possible after first doing our homework. The best feedback is from the target customers who will ultimately pay for your product once commercialized and outlines continuous improvement paths towards an optimized solution.

We have specific meaning and organization behind all the elements of our "It's How We Do It" development process formula.

I - Innovation: Creative skill born out of continuous education, curiosity, varied hands-on experiences, invention, and well-placed application making the world better one step at a time.

P – Our Process: Continuous user feedback through our iterative design methodology – curated by project management driven by predetermined and accountable milestones.

+ Innovation and **Process** are *fused* together – the value of Innovation is only realized with Process, and the pathways of Process are worthless without innovative inputs! HI loves working through the balancing act of those two incredibly important interdependent aspects.

BN – Business Needs: Our approach is client-centric... your needs drive everything we do. The Voice of your Customer, your development budget, your market timing needs... all play into design constraints, must have features, and in the end, exceptional products that excite customers.

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