



Technology Currents...

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J.Gold Associates, LLC. 6 Valentine Road, Northborough, MA 01532 USA
www.jgoldassociates.com +1-508-393-5294
Research, Analysis, Strategy, Insight

Samsung Automates Social Distancing

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How do you keep assembly line and similar high density location workers safe during Covid 19? Is an automated system that tells them if they are not socially distancing, while also keeping track of contacts in case you need to do social tracing after exposure viable? If so, how do you do it quickly and cost effectively without having to build a totally custom solution that could take months to create and deploy?

The key to making this work is to leverage existing commonly available equipment and only modify it “lightly” while also making it attractive to the end user community. Importantly, the ease of use and high quality end user experience are prime factors in making any such system effective. Any solution deployed needs to operate in a factory floor or similar high density setting where excess personal equipment is not desirable and users don’t always have the ability to interact with handheld equipment. To this end, having an app on a smartphone or similar external device won’t work, nor will the need to go to a PC or similar computing station. The ideal solution would be enabled through a small and easily “forgotten” device. And that would ideally be a smartwatch.

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Smartwatches tend to be unobtrusive, and are always on. They have the basic communications capabilities such as low power Bluetooth that allows them to detect other devices around them. And they have enough computing power to both run a tracking application with a graphical user interface, as well as interact with a back end data gathering and alerting systems. Most also have layers of built-in security and privacy functions that can be leveraged to keep the solution acceptable to personnel and regulatory policy. However, for this use case where simplicity and user acceptance without a lot of training is critical, the majority of functions on the smartwatch just get in the way, using up valuable battery life that is needed to keep the device functioning throughout a day or at least through a full shift.

Quickly creating a solution

Working with partners, Samsung recognized the opportunity to leverage its smartwatch as an ideal candidate for such a solution. Because it has access to the core operating system of the watch (in this case Tizen), it was easy to disable many of the peripheral functions that were unnecessary for the solution, without having to completely rewrite the watch OS. Further, and perhaps just as importantly, through its Knox Configure capability, Samsung was able to push to each device updated functions and capabilities while controlling the on-board watch systems remotely over the air. This is a critical

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capability for mass deployment, as IT individually handling each device for configuration would be too burdensome. In practice, once a standard device is provided to a user, the watch is provisioned by a server that then distributes the application and watch settings without requiring user intervention. The watch itself does not need to be modified, nor does each device need a “hands on” update/upgrade, making the whole procedure virtually invisible to the user, and allowing the use of off the shelf devices that eliminate the time and cost structures associated with custom hardware solutions.

Enabling tracking, anonymously

The result is that each individual now has a device that can discover and log each time another device is within a specified range. This data is then occasionally uploaded to a data base that can use analytics to discover patterns of users interacting, how often interactions occur, peak loads, congested locations, etc. The devices can track if social distances aren’t being kept and people are getting too close, although for privacy concerns this capability may not be implemented. For increased privacy and to allay any employee contractual issues, the individuals are only identified in a secure central database, and onboard watch data is anonymized to watch serial number only. This prevents user tacking and ensures privacy. But it does allow for the ability of the company, should someone test positive for Covid, to track all interactions and notify users accordingly.

Future capabilities can be added, assuming users are accepting of such additions. In some companies, especially with unionized workforces, any new features will require full approvals of the collective bargaining organization. But potentially heart beat monitoring, temperature monitoring, and user inactivity suggesting an emergency, etc. could be added to determine the level of wellness of the user. Many of the sensors for determining this are already present in the smartwatch and simply have to be enabled and tied to a software solution.

Bottom line: what’s impressive about this solution is that it was created with off the shelf equipment, and was built, tested and deployed within only a few weeks, and with minimal equipment cost. Most of the solution was already inherent in the watch and the management function of Knox Configure. Any full custom solution requiring specialized devices would have taken months to deploy at far greater cost. Further, the solution, with only minor modifications, can be configured for use in a variety of settings and companies. And the solution could be extended far beyond just Covid monitoring. It’s applicable to special cases - for instance keeping track of medical staff in a hospital setting, or firefighters in a smoke filled building, or similar types of situations. We expect to see a high number of leveraged solutions that spring from this initial situational requirement. Other smartwatch providers are at a disadvantage if they can’t similarly reconfigure and remotely manage their devices for such customized commercial needs.



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Northborough, MA 01532 USA

Phone:
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Web:
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