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Saikat Dey, CEO of Guardhat Inc. discusses their Intelligent and Connected Worker Safety System that enables Remote Guidance, Moving Object and Fall Detections, Restricted Zone, Hazardous Environment and Active Physiology Awareness resulting in Reduced Human Error

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CEOCFO: ***Mr. Dey, what is the vision behind Guardhat Inc?***
Mr. Dey: To make frontline industrial workers safer.

CEOCFO: ***In what way?***
Mr. Dey: By preventing accidents, by making them more connected, and by providing situational awareness to corporations about their workforce.

CEOCFO: ***What is the standard way that safety is addressed today or is it really not addressed at a level that is good enough?***
Mr. Dey: If you look at the market today, in the US alone, we have had over forty seven hundred fatalities in 2016. In 2017 the number was north of five thousand, looking at the last numbers that came out. That is an average of roughly thirteen to fourteen fatalities a day if you were to average it out on a per day basis. Safety has been carried out with various new methodologies, that have come up through the last ten, fifteen and twenty years, specifically centered around behavioral based safety and behavioral based corrective actions, observations and surveys to try and keep ahead of the issues that we see on a daily basis. However, while we focus on the human aspect of the technology that underpins safety, it has not made as much progress as we would like. People still use clip boards. People are still using basic equipment. By basic, I mean they are not connected pieces of equipment to form an intelligent eco-system, connecting gas sensors, walkie talkies, gloves or clothing. These individual pieces of equipment should be the last line of defense, not the first. Ask any safety manager today, and almost all of them, will tell you that the answers to these three basic questions will probably be "no": Do you know at any point in time where your workforce is? The answer is probably going to be no, because safety managers do not have the technology to tell you where your workforce is at any point in time, inside a plant, inside a mill, inside a mine, even outdoors, per se. That is one. Two is, do you have an ability to know what kinds of conditions they face? Simple things like: how hot is it, what kind of temperature conditions do the workers face, what kind of noise conditions, what kind of pressure conditions, what kind of gas levels are they in, are they in an environment that they are not supposed to be in, are they in a zone that they do not have access to, are they walking very close to a piece of moving equipment that could hurt them, like a forklift? The situational awareness of their environment and their physiological conditions is limited, and can they quickly locate people who can provide the help when something bad happens? The third question that we ask all safety managers is can you actually communicate with your workforce on a very tailored basis, on a more targeted basis, in order to prevent an accident or in order to be able to make the worker more effective or efficient or more productive? The answer is, to a large extent is "no", while it is has happened on the enterprise side of

the business, it has happened on the consumer side of the business, it has really not happened a lot on the industrial side of the workforce, and we can do better. The reason is today most workers are being connected using a walkie talkie, or a land based radio system. Everyone listens in to whoever is on the channel. Many of the devices that are used today for enterprise connectivity, like smart phones and tablets, are not typically allowed not plant floors, because you do not want people to be taking pictures and posting them on facebook or social media, for confidentiality reasons. Secondly, you do not want people to be texting and operating equipment just like you do not want people to be texting and driving. Thirdly; the equipment itself or the piece of electronic device itself has to be intrinsically safe. That means that it needs to have the right electrical design so that piece of equipment does not cause a spark that leads to an explosion in these environments. Most consumer products do not have the ability to be deployed in these environments. Given those kinds of impediments; Guardhat's solution is uniquely positioned to answer the most pressing questions of: where is my workforce, what kind of conditions are they facing, can I communicate with them, the combination of those three. Guardhat's technology can answer these questions. There really has not been anyone trying to do it in such a holistic manner to date in the industrial safety world and this is what Guardhat does.

CEOCFO: ***How will Guardhat revolutionize the industry standard for workforce safety and connectivity? What is your approach?***
Mr. Dey: Our approach is simple. Our approach is that we package and design technology, and adapt it to the certain peculiarities that industrial environments present and basically help safety and operations managers to answer the questions; where is my workforce, what kinds of conditions to they face, how do I communicate with them; and as a result of all of this technology being applied in these environments how do I create an enterprise that is transparent, that is informative and that helps me make my workforce not just safer, but more productive. It is basically taking technology and creating an intelligent learning system by bringing it together in a form factor that can be adapted for other solutions.

'When we started the journey we thought of ourselves as a worker safety platform. However, when we were in front of our customers, our customers basically told us, "Guess what guys, you are not just a worker safety platform, but you are a worker connectivity and a productivity platform."- Saikat Dey

CEOCFO: ***Would you give us a couple of examples of what you put together at Guardhat?***
Mr. Dey: If you look at traditional industrial IoT you are assuming that connectivity is available to the cloud or to the back end. For example, "Hey Alexa, what is the weather this morning," and the blue circle goes around and it goes back to the cloud, asks what the weather is and it comes back and says, "Hey, it is fifty four degrees and it is raining." However, the problem is that in most of our manufacturing and distribution environments, in the heavy industrial markets like steel, mining, aluminum, Oil, Gas, Chemicals and construction, many of the times connectivity is a luxury, it is not a given. What happens to Alexa in that case when you do not have a connection? The application of a similar sort of thinking to environments like these where devices are allowed to work autonomously or in a network connected environment.

There is also the consideration for privacy and worker rights. Workers do not want to feel victimized because there is so much transparency in the system. So, how do you protect the worker from that perspective? We solved for that in our Guardhat solution with some unique means.

In addition, we eliminate some of the devices that they are carrying. Today they are carrying a gas sensor, a CB radio and their hardhats along with everything else they need to perform their work. Each of these devices that they carry on themselves need to be charged and need to be calibrated. We looked at how to minimize the amount of devices that need to be carried. We imbedded that inside our wearable device in a way in which it becomes very intuitive and in a way that it does not impede in their day to day operations.

CEOCFO: ***Are there challenges in integrating several technologies into one device or does it matter what else is in there? Do the different systems need to coordinate? Can several systems coexist without a problem?***
Mr. Dey: That is the biggest challenge and that is where Guardhat's uniqueness is. It is the ability to bring all of this together. You have things as different as an RTLS system, which is a real time location system. You have an IoT bus that we had to create from the ground up, because no conventional IoT platform could have handled that traffic. Building a form factor wearable and creating backend visualization software, creating an analytics platform and enabling it to deal with disconnected environments where device are not connected. This is the biggest challenge that we have, to make all these disparate systems work together. Many solutions today are point solutions. Yes, we can detect your posture is wrong; great. We can inform you in the backend that your posture is wrong. We can detect you are feeling sleepy; great. You have a separate screen for people who are feeling sleepy. You have a solution that detects fatigue; great. I can send

you another screen. However, how many screens do you expect the operators to be looking at? Therefore, the ability to tie all of these different wearables in the front end, the ability to give the operator the ease of use of looking at one single pane of glass, where he sees not just his people, but also his operating assets and figuring out how these two are interacting with each other, bringing all of that together and also integrating it with backend software. For instance, I want to be able to call a person in the field, but I do not want to have two different telephony systems. I want it to be integrated in my current telephony system or I want it to be integrated into my ERP system, like SAP or Oracle or IBM Maximo, or I want it to be integrated into my HR system, so that I know the person wearing a hardhat is a mechanical foreman and he has certain rights and privileges of entering certain areas, but someone else does not. That is where the uniqueness of Guardhat comes in, which is the ability to tie in so many different elements and disparate technologies under one big platform, yet keep it open so that you can make it expandable to other needs as things come along.

CEOCFO: ***Is Guardhat in use today? Are you still in development?***
Mr. Dey: We have been in the field being very, very aggressively tested and kicked around for almost two years. We do not talk about it a lot. We are a typical Mid-Western company that believes we let our products do the talking. However, we are doing a market launch commercially in October in two weeks at the National Safety Congress and Expo. All of our product design, testing and development has happened in conjunction with some of the largest global companies that you can think of in these target markets, in return, they have given us invaluable input over the last two years to build the Guardhat Solution, refine it, take things away, add some things and so forth.

CEOCFO: ***What has changed in your approach as you have been developing, as people have started to use and test? What have you learned along the way?***
Mr. Dey: A lot! I do not know how much you know about the backgrounds of the founding team, but we were not technologists to begin with. I was the CEO of one of the largest steel and mining companies here in the US and globally prior to doing this role. I come from a very different world. Most of the people who founded Guardhat come from the target customer markets, oil and gas, steel, mining, metals and so on. The reason we built our solution was because we saw a real need, so we were really a use case looking for a technology. That being said, we were humble enough to acknowledge that while our initial ideas made sense to a lot of people, there were bound to be refinements and changes along the way that our customers suggested. For instance, one of the biggest things that we learned was that not one size fits all in terms of the frontend wearables, so you need to create a modular approach in which you can have different avatars of the same principal, like a set of Lego building blocks, which customers can choose and deploy, even within the same plant or even within the same unit, for instance. Most customers can choose a certain functionality, while other persons within the same customer can have a different set of functionalities. That was one big piece of feedback. The second big piece of feedback we got was around the ease of use, the usability, which was a big one in terms of how we designed the interfaces, how we designed the software interface on the backend, the control center. However, I think that primarily, more than anything else, what customers provided to us was really true in depth understanding of the strengths of the platform as we have built it. The best way to describe is that when we started the journey we thought of ourselves as a worker safety platform. However, when we were in front of our customers, our customers basically told us, “Guess what guys, you are not just a worker safety platform, but you are a worker connectivity and a productivity platform. When we asked them what that meant, they basically said, “Listen, now with this I can do time and attendance, I can do time and efficiency modeling, I can do asset management, I can do a whole bunch of things with it. MRP planning or remote support or planning for your maintenance jobs.” Therefore, a lot of processes can be enabled as a result of you knowing the basic information about where the worker is, the ability to communicate with him or her with data, video or audio and then the ability to sense the context of the environment he or she is in. As a result of doing all of this we have expanded beyond just the current focus of the company, which began with being a safety platform, to being much broader and bigger.

CEOCFO: ***Are the workers on board? Do they understand? Do the value the safety? Do they feel a little like Big Brother is watching?***
Mr. Dey: Obviously, they see the value right away, but there is always the apprehension, “Hey, this is Big Brother watching over me.” Therefore, one of the design considerations we had is how do we overcome that. How do we insure that the workers do not participate due to the fact that now supervisors have access to location data and have access to a bunch of other data? We designed the system to be very simple. We said, “This is one level of privacy we have built in for worker protection. Until the frontend wearable detects an anomaly in the system, like an event, such as someone is falling or someone is in an area where gas levels are high, up to that point of time the location is not disclosed to the backend visualization platform. That way the workers feel like the system, this umbilical cord, is there to the mother ship when I do need the help and yet has not got me around the neck when I do not need the system. This means the system has to be fungible enough to be able to do that and that is only possible when you have conceptualized the system right from the

very beginning and you have designed it with the help of workers. The good news about the solution design, is that from the very beginning we had our brothers from the UAW 600 sit down with us and actually help us design the platform. We took their input to say, “Okay, what is it that is important to you? What is it that is important from a workers’ rights perspective? What is it that is important from a visibility and transparency perspective?” Another idea they said is, “How about this backend safety control center being manned by people from the unions or how about the backend control center being manned by a third party, like a security company”. That way they know that it is being monitored professionally by someone else who is not part of what we call “management.” Therefore, there are several ways in which we have built this element of protecting and dissuading people from thinking it is Big Brother. At the end of the day the proof is in the pudding. Once this thing is out there in the field and people use it and walk with it and it saves lives and it prevents accidents; that is when people will truly start believing in it as a product. Until then all of this is just hearsay and we are very open about that.

CEOCFO: ***Not dying or getting hurt is a pretty big incentive, for sure! We noticed Guardhat from a recent funding. How far will it take you and are you looking for additional funds, partners or investors?***
Mr. Dey: I think we are good for now. We have enough runway to commercially launch the product, get a significant amount of traction in the market, build out our sales teams and our marketing teams and also build out the partnership ecosystem that we have. Our primary go to market model will be selling through a set of partners who already have existing sales forces, existing fulfillment, existing system integration teams who do this for a living. Since we are trying to replicate all that we are basically trying to cooperate with our partners to make sure that we can fulfill big global customer orders through a network of partners in segments and in geographies as needed. That is the good news about having this kind of model. It is that you are now relying on the strengths of your ecosystem partners being able to propel this and gain scale quickly.