Amber Bardon

Welcome to Raising Tech, a podcast about all things technology and senior living. I'm your host, Amber Bardon. Today we have two guests with us, Anthony Columbatto from John Knox Village and Deepak Gaddipati from Virtusense. Welcome to the show.

Deepak and Anthony

Thank you. Thanks Amber. Thanks for having us.

Amber Bardon

Deepak, let's start with you. Deepak is the founder of Virtusense, which is a company you may have heard of. Virtusense has created a revolutionary falls prevention technology that uses artificial intelligence and innovative sensors. Tell us more about your founding story and how virtue sense came to be, Deepak.

Deepak Gaddipati

Yeah, so my background is in mission vision and artificial intelligence. So 15, 16 years back, I developed the first airport security scanner, that you you go lift your hands and looks for explosives. So we practically put in every airport across the globe and I took a break, wanted to do something different in life. When I was 26, I moved to New York city. So while I was there, I got a call from DOE to develop some technology. So I ended up working with the US Army for about six years. And while I was doing that, my grandmother who was 68 years old, she fel and broke her hip, and died as a result of a fall within 10 days from the day she fell. So that's what got me into trying to figure out what can we do to prevent falls. And that was my calling and I started Virtusense in 2013.

Amber Bardon 01:43

Anthony. Can you tell the listeners about yourself as well and about John Knox village?

Anthony Columbatto

Certainly I'm the Vice President of Health Services here at John Knox Village. We're located in Lee's Summit Missouri, which is about 20 minutes outside of Kansas City. We are the second largest single site life plan community in the country. And so we provide services from a range of independent living, assisted memory care, skilled. We have our own home health agency, hospice agency and our own ambulance service that we provide for residents both on campus and within our broader community.

Amber Bardon

Anthony and Deepak. Can you tell me the story of how you came to work together and how did you meet?

Deepak Gaddipati 02:25

So it is really interesting, right, Anthony? I mean, I didn't give, I'll give you a little bit of overview about Virtusense products, because I just said about why we started, so you can put the context together. We provide, we are the number one fall prevention solution in the world today. We take care of our 1.2 million seniors just in the US. We are in about 4,000 post-acute care sites. We are in about 40 health systems across the country and rapidly expanding our footprint. This was almost five years plus back,

when we were just getting into the market. There is an insurance company called Caring Communities Insurance that actually is a captive insurance for quite a few not-for-profits. And John Knox village was one of the members. And at that time we we got connected with Caring Communities through a affiliation with Ziegler, and they were looking at our technology from fall prevention because 70% of the claims that happen in senior living industry are fall related. Anthony, you wanna take the story from there?

Anthony Columbatto

Yeah. So I mean, from our perspective, we've been trying to navigate the world of fall prevention for a very long time and our industry has not been able to move the needle a single bit. And so as we started to do all these different interventions and we did, we introduced new call lights and we did pressure pads and a variety of other things. And it didn't work. We at John Knox Village, we've always felt like we were trying to be on the cutting edge of new technology, new interventions to improve the lives of our residents. And so Jim Caldwell, the CEO of Caring Communities came to us and said, "hey, I've become familiar with this technology that I think is right up your alley." And so Deepak came out to do a presentation. I think it was in 2017. And I think within 30 minutes we were all sold that this was the company we were going to partner with to actually prevent bad outcomes for our residents.

Deepak Gaddipati 04:43

It was really a very funny story. I was pitching and Jim Caldwell, and then obviously CEO at Caring Communities was with JKV with Anthony and me, and he said, "hey, I'm willing to pay for this technology." It was the balance, the assessment system back then, the first one. And and I still remember Rodney and Anthony said, "no, no," it has enough ROI that we can buy it on our own. So it was very interesting when when they really saw a clear ROI for the residents and as well as my financial standpoint. And I, after that, I mean we deployed a VST balance and assessment system that in under 90 seconds figures out, who's at risk for falls based on balance, gate and function deficits. And it designs a care plan customized for each resident and tracks to see who's getting better and who's not, and it's starts de-risking the seniors.

Deepak Gaddipati 05:43

The seniors. So that was our first engagement with John Knox Village. And right after that, I mean, the relationship went to the next gear. So during the presentation, I mentioned that we were developing a technology that is in room based that also is focused on preventing falls in skilled nursing and memory care. We said, I mean, we are here or a couple of years out in developing that. And we were focusing a little bit on the hospital side. So Anthony being Anthony, a man who is a very innovative leader, he said, "hey, can we get this in senior living? I, I need this like tomorrow." I mean, he kept pushing us and we finally, even the same time we were testing us in hospitals, we had it like two years from the roadmap to get into senior living, but Anthony put quite a bit of pressure, they said, "I really need it. I really need it." So we just got it in into JKV.

Anthony Columbatto

I think if I remember correctly, I had it on my calendar to call you every three months until you would commit to me when we would be able to have it installed, because it was that exciting.

Amber Bardon 07:00

I love that persistence. Anthony, you said a few minutes ago that you, there hasn't really been any company that's been able to move the needle on falls technology. Tell me a little bit about what Virtusense actually does. So what does it actually look like from a resident's perspective or from a caregiver perspective and what are the benefits?

Anthony Columbatto 07:17

As Deepak mentioned there's two different applications that we're using right now. So let me, let me talk a little bit about VS, I'm gonna go backwards and talk about VST alert first which is the in room sensor that will notify our staff. If a resident is starting the process of getting out bed. We, through Deepak's research and some of our own, we know it takes on average about a minute from the time that a resident starts the process to get out of bed till the time that they're actually out of bed. And a minute may not seem like a long time in the real world, but in our world, that's a lot of time for us to really get in there and help. As Deepak mentioned with the story of his grandmother, we societally do not know if someone's a fall risk until after they've had a fall, and that's really backwards if you think about that.

Anthony Columbatto 08:10

And there should be some ways for us to understand, you know, what puts someone into that high risk, medium risk, low risk category. We installed 11 sensors onto our rehab unit that was our highest area of fall prevalence and our highest area of claims that we had. And so we picked 11 rooms to do this pilot program with Virtusense over a six month period. And in that six month period, we saw almost an 80% reduction in falls from the previous year, which is substantial. And so I think, and Deepak would admit, we were the first, we were the guinea pigs. We helped them work through a lot of challenges, but it was, and is a really good partnership and learning opportunity. At the end of the day, we were able to prevent falls and, and that is something that we were not able to do on our own.

Amber Bardon

Where do the sensors, are they on the residents? Are they in the rooms or how does that part work?

Deepak Gaddipati 09:12

The, yeah, let me explain how the technology works, Sam. So the in room technology uses a technology called LIDAR. This is basically what you see in your autonomous cars that figures out in 3D (CUT) what Google does on the autonomous cars or Ford's autonomous driving cars, so it figures out in 3D, (CUT) where is the bed? Where is the chair? Where is the IV pole? Where is the patient? Where is the hand wash station? So it knows the surroundings. And there are AI chips built in on the system itself that take all this data 30 times a second, it captures all this data. We use two and a half millions such hours of data, trying to figure out what do people do before they get up from the bed? And before they get up from the chair. because traditionally all you know is after. There are a bunch of things that tell you they have fallen or they have already gotten up from the bed, so it's too late. So using this AI, today we know 30 to 65 seconds before they get up that they're going to get up, with very few false alarms

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So as a result, when the system talks back with the resident in the room in a bunch of different languages, so it says, please don't get up, someone will help you. And at the same time alerts the nurses and the CNAs and techs on their phones or endpoint devices and in the central console and the nursing station. All this happens simultaneously that extra time of asking them to wait in their room, gives you an extra minute or two. So as a result, most, a lot of times when clinicians walk in the residents or seniors are still in their bed or in their chair and they're waiting.

Deepak Gaddipati 10:53

So that's how we are preventing significant amount of falls. And it's, you don't need, it's a super lightweight system. It's like that small. It just fits in your hand and it goes on the wall. And the most important thing to note is it's not a camera. It works both in night and dark. It uses like how do you think of a radar in submarines that uses Doppler and ultrasound and all that, this uses just light. It's completely privacy centric. You don't know if it's a male or a female or a skin tone, nothing. And even all that data is only just processed and discarded. So we don't keep any of that.

Amber Bardon 11:32

That one minute response time seems like a short time window. How do you present this to caregivers in terms of being constantly aware and looking for these alerts to come in and what is your - what is the response like to alerts?

Anthony Columbatto 11:46

Our strategy was really to focus on the nurses. We know at any given time throughout the day, a CNA could be tied up in a room with a resident and that could prevent them from leaving that person in a vulnerable position to help another one. Our communication strategy was aside from the fact that, you have the opportunity to prevent a fall when a nurse has a fall on her shift, there's a lot of work that goes into that. Even for a non-injury fall. They have about three hours worth of paperwork to complete. They have to notify a family member. They have to notify the physician. They have to do 72 hours worth of neuro checks on the patient. In our mind it was okay, you have this device on you, you see the alert, it is worth dropping whatever you are doing to go help this resident, A, to prevent a fall, which is most importantly, but B all the after effects that, that come after the fall. And, and I think that was the, the key to get a lot of buy-in.

Amber Bardon

What is the resident and family response to this? What are their thoughts on this platform? And do you encounter any resistance to this type of technology?

Anthony Columbatto 12:55

We have not encountered resistance. I remember the first time we deployed it, we had a daughter that we were informing about the sensor and what it could do. And I remember that the daughter ended up in tears because she said, "I can't even at home, get my mom to stop falling. And for the first time I have home hope," and I'll never forget that story. We have them sign a, a waiver, just letting them know that there is a sensor in the room that we are going to be working with a a software vendor to monitor and to send alerts and things like that. I've yet to get anyone that did not want to sign the waiver that did not understand what we were doing. I think everyone has been very supportive.

Amber Bardon

Deepak, can you talk a little bit about the growth of VirtuSense? How many communities are you in? How many residents are you serving today in the senior living industry?

Deepak Gaddipati 10:53

The bulk of our installations are in senior living. I mean so we had exponential growth in 2020, 2021, and so when we were working with Anthony, probably we were in about about a hundred, 200 communities. And so what happened after that is the assessment product VST balance got a very, very wided option because of the outcomes. So we started, so if you think about it, everything today in falls is reactive and everyone reacts after a fall happens, whether it's in a nursing home room or even in an AL or IL, everything is reaction based after you fall. So when we identify these deficits ahead of time, all of a sudden physical therapy, contract rehab providers, a lot of them got us into, they bought thousands of systems from us and put them in these communities where they were reducing falls significantly.

Deepak Gaddipati

They were able to generate new revenue streams by identifying MED B residents. As a result of that, we expanded to almost about 4,000 facilities with the VST balance product. And on the VST alert side, we've been growing very consistently. We are in few thousands of beds in postacute side. And the same VST balance actually is also used now in primary care. It is used during annual wellness visits by primary care physicians, so quite a few health groups. Anthony, I don't know about you, but at least in central, we have quite a few health systems rolling this out, across all primary care in Chicagoland and quite a few places. Yeah.

Amber Bardon

That's amazing growth. Congratulations.

Deepak Gaddipati

Thank you.

Amber Bardon 15:32

Can you walk me through when you're having these initial conversations with a community, what are some of the benefits that you highlight? How do you talk about the ROI and the cost model and what are some of the other key things you think that community should know?

Deepak Gaddipati 15:46

Yeah. Obviously depending on what kind of community the ROI is different. For example, if you're looking at a just let's start with skilled, because that's where the toughest place where a lot of falls happen, right? So to give you a perspective, as I said before, 70% of the claims that happen in skilled nursing are fall related. So if you keep that in perspective, the industry numbers are average across the country. An average, hundred bed skilled community has about 1.3 settlements in a given year. I'm sorry, 1.5 settlements in a given year, and the average settlement costs is about $250,000. So if you think about it, they're spending about $375,000 a thousand dollars a year, and 70% of those claims are false. So when we did this study with Caring Communities Insurance, and what it came down to is we were actually eliminating the complete, we were reducing the claims by 70%.

Deepak Gaddipati

This is almost, if you think about it, it's about a quarter million plus savings in a year, that's the first thing, The second thing is now your quality ratings, your star ratings go up. I mean, we've seen this in quite a few communities. I mean we actually did a case study in a different community where we reduced falls

with injuries by 96% within a quarter of implementing this. And the nurse to patient ratio is something off late. We are seeing a big jump because we are going to be enabling pressure ulcers. We are already doing this in few hospitals now. So as a beta program, Anthony, so what it's gonna do is, I mean, if patients don't turn a bed, it's going to talk back with them and say, "please turn to your right side, or please turn to your left side."

Deepak Gaddipati 17:41

And if they're not compliant, then it alerts the nurse. So as a result, we will be reducing about 70 to 80% of pressure ulcers that happen in any clinical setting. When you are doing all this in a highly automated fashion where your nurse doesn't have, or CNA doesn't have to go in every 30 minutes or an hour and check on the residents because we are checking them every 30 times a second. That really helps you provide care for more people with less resources. We are seeing this in both hospitals and post acute care. So these are some of the three big benefits, right? I mean, reducing costs, the liability legal costs. Enabling more, I mean, actually there is, if you are a using a physical therapy provider to use our balance system, then what happens is you also generate new med B therapy revenue, and you almost have a five to six ROI on that system right away.

Deepak Gaddipati 18:40

So that's why a lot of contract rehab providers use our technology today, right? So between all this and then day one, when we go and flip the switches, we actually, it's a ROI positive thing. It's immediate new revenue, cost avoidance, as well as quality metric improvement. And quite a few communities use this as a marketing differentiator like John Knox Village. When you want to put in your, let's say your mother who is 78 or 80 years old and visit three or four communities, everyone says the same thing. I mean, plus or minus 10% change in pricing. But you can say, put them through a quick assessment when they walk in, and show your mom is a high risk, and this is the technology we're going to use. This is how we're going to take care of them. And if they don't get better, then we put these sensors in their room to make sure we take care of them without falling. It's a very simple decision for a family member to make.

Amber Bardon 19:36

Anthony, can you talk a little bit about how you implemented the program at John Knox? What are the things that you think were the keys to success and what are maybe some things you wish you would've known or lessons learned that you could share?

Anthony Columbatto 19:49

Well, yeah. And I said, I was going to go backwards and talk about VST alert first. I'll stick with that. That, that was a program that, I think we knew going into that,being the first, you have all the benefits of being the first community to have that you have all the pitfalls as well, right? Because we're all learning things together. I think I don't really have anything that I would've done differently with that implementation. Virtusense and the team were out here routinely on the phone with us as we worked through and learned together, and so that was a really good relationship. I'm a personal believer that, you know, we're not a customer, we're in this together. And we have always been treated like a partner which has been fantastic.

Anthony Columbatto

On the VST balance side, the reason I went backwards is even though that was on our campus first, it actually took longer to get that integrated into the culture. And that I think more so is, we didn't really understand the long term ramifications of using a product like that. And so very recently we've started to use that product more routinely. And as Deepak has said, we have seen a incredible increase in the amount of referrals for outpatient therapy that the group that is doing the VST balance and the outpatient therapy group are now meeting on a weekly basis to find out who did their VST balance system and who would benefit from therapy? We've told our residents that our goal is to have them do the VST balance every six months or so, because it will track them over the course of their lifetime.

Anthony Columbatto 21:26

It'll show if their gate speed has slowed down or their time get up and go is different, or their balance has just changed as they've aged. And it was funny. We're now starting to walk around campus and we'll hear, "well, hey, you've got to go get your balance test done. And so the residents are finally starting to embrace it because they want the same thing that we want, which is for them to age and place as long as possible, and to receive healthcare where they want to receive healthcare, as opposed to being forced to move through the system.

Amber Bardon

What do you see are the real possibilities to take this technology to the next level in the next couple of years? What do you envision how Virtusense will look in the next three, five years in terms of outcomes in new products in, and tell me what you're most excited about.

Anthony Columbatto 22:10

I think historically senior living has been so far behind other interest industries from a technological standpoint that we're now starting to see a lot of companies flood the industry with a lot of different solutions. For us, we've had to carefully pick and choose because you can't do everything right? And so we've had to be very strategic with our partners. I think what I'm looking for is to partner with organizations that can continue to automate some systems and some processes for us and really to augment our workforce because we've all experienced tremendous workforce challenges, even pre pandemic, they're getting worse I feel like almost every day. And so we have to figure out like other industries have how to utilize technology to help us augment care, deliver care, whatever system that is, because that is going to be where the future is. That's where we're very excited to continue to partner with a very forward thinking organization, like Virtuesense so that we can continue to kind of look through that crack crystal ball together to predict what the future's gonna look like and how we can create a different future for seniors and a better one.

Deepak Gaddipati 23:25

So just to add on to that, Amber exactly what Anthony was telling. So when we started our collaboration relationship with JKV, Dan Rexroth, who is the CEO of John Knox village, Anthony and Rodney. They were the three pillars who saw what we were doing and where we are going with it. Right. I mean, it's not just the falls I mean, it was about the pressure ulcers and and it's about enabling care. So what happened during the pandemic is, it's becoming very hard to get hold of specialty physicians to really help residents in a nursing home. And on top of that, you don't have enough staff to actually care for these residents. What we are doing now is, and we are already doing this in the hospital side where we are enabling telehealth. What we mean by that is, when a resident has, for example symptoms that are not getting

better from a physical standpoint or pain standpoint, we can bring in a physiatrist onto the system within a matter of 24 hours.

Deepak Gaddipati

So like that. And they can schedule a call and they come in and they provide care. And there is no cost to the facility, and physicians will bill directly through telehealth and they'll take care of the patient. And in most cases, there's not a lot of cost to the patient either because they're all covered to insurance site. We are not only just provide being predictive. We are being the ecosystem that connects and deliver care pretty quick. So Anthony, one more thing, there is a new partnership we formulated through which you can designate one room where we'll put our hospital grade VST one inside the nursing home. And if you have any patient that has a stroke, within 90 seconds, you switch the system on you will get a stroke neurologist to evaluate the patient. So today if you think about it, you drive the patient to the ED and the ED it's about 20 minutes,

Deepak Gaddipati 25:31

And then there is a stroke neurologist that needs to see them. The point is not all EDs have stroke neurologists. There is a huge shortage. So the company we are working with, they actually partnered with us on the ED side in the hospitals. And then we said, why should we wait another 20 minutes to make the call? Why can't we do this in the nursing home itself, or in senior living where all they need is and access to a nurse? So if we can get access to a nurse, they can do initial triage rather than waiting and putting them at a 70% mortality risk. Can we reduce that to 10 to 20% by identifying, by intervening ahead of time? These are new care delivery, enabling mechanisms through telehealth that we are doing. And additionally, we also did decent amount of work with Anthony and his team on vital monitoring.

Deepak Gaddipati 26:25

So we have FDA approved patches. These are like stickers that go on the chest that automatically measure all the vitals like heart rate, respiration rate, pulse, core body temp, PCG, and blood pressure. And the AI automatically looks at deterioration and would alert the nurses if the patient is deteriorating. So you don't have to wait to get vitals every eight hours, or 12 hours. COVID cases, you have to get vitals every two hours. So you don't have to use PPE or the mask. The system was automatically doing all this for you. And now we are working with Anthony to get it more into, independent living. A wearable that goes on your arm that can monitor these vitals pretty much real time. Like once every 15 minutes, it's like a small iPod. If you remember the iPod nanos that go on your shoulder it's exactly of that size. So there is quite a bit of innovation coming in healthcare and especially to be, our focus is to be proactive, right? We just don't want to tell after something happens, because there's already people who know what to do when a person has heart attack or respiratory failure. We want to find these out ahead of time. We want to find sepsis ahead of time. We want to find pressure ulcers before they happen, falls before they happen. So that's the pathway for Virtusense

Amber Bardon

That sounds really exciting. I'm excited to see what comes next. Anthony and Deepak, is there anything else you want our listeners to know?

Anthony Columbatto 27:54

I think as dark as the last two years have been for our industry, I really do believe that we are headed for a very bright spot, and I think we've talked pre pandemic even about how this next generation of seniors, they're going to want to age differently. They're going to want alternative choices. And so now fresh off the pandemic, I think we're at a point where we are going to have some very significant offerings for them, and we're going to meet the consumers where they meet and want to be met, which is exciting for both parties.

Deepak Gaddipati 28:31

So just to wrap up on that, Amber, I think, I mean, I can't echo more. The last two years have been really, really tough on healthcare. But senior living, you had the toughest problems and least amount of dollars on the other side, which made it even worse. And typically healthcare is not only just senior living. In general healthcare, we have always been very a reactive society and always we threw people at problems. And this is the first time in the history where we don't have people to throw at problems. So this is where the key for, I don't want to use the word, autonomous care, but to the level that we want to be predictive and augment the capabilities of clinicians on the floor, you can't expect them to run around and do everything and do all these original 20 things, and it causes burnout, stress and all these things.

And you need to take, senior living communities will have to make some technological investments like core base. You need to have a very minimal working WIFI for any of these technologies to work, right? So those are some of the investments they need to make on the infrastructure side. On top, they need to pick technology partners that can truly transform care for them and make some bets. You've got to move. You can't just drag, wait for miracles to happen. Because I mean, if anything that got thought in the last two years, unless you act, you'll be in a tough spot,

Amber Bardon

Great summary and wrap up. I love it. Thank you so much for joining me today. Deepak and Anthony. Thanks

Anthony and Deepak

Thanks for having us.

Amber Bardon

And listeners. Thank you for tuning in to this month's Raising Tech episode and we will see you next month with more technology insights. Thank you for listening.