

Case Study:

Reducing Recurring Falls and Increasing Safety in Senior Living Communities through a Vision-AI System



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Categories:

- ◆ Reduced Response Time & Incidences
- ◆ Increased Resident/ Staff Safety and Satisfaction
- ◆ Increased Peace of Mind

About the Organization

Organization Name:

Lile the Style, North Hand Group, Higashi-ku (Hiroshima, Japan)

Main Contributor:

Mitsuoka Reiko, Head of Marketing and Customer Success

Organization Type:

Assisted Living Facilities

Organization Description:

Lile the Style offers a spectrum of services catering to the diverse needs of the elderly, including serviced rentals, helper stations, and functional training day programs. Our unique collaboration with medical facilities and the presence of on-site nurses ensures that residents receive reliable and secure care. Based at Care Village Lisle Atsuhin, we are dedicated to nurturing a community where smiles are abundant.

Project Description

In this case study, we detail the pioneering efforts of Care Village Lile in mitigating the prevalent risks of falls, bed exits, and slips that account for 65.6% of all accidents in their nursing care facilities, particularly in the face of staffing shortages. Partnering with Voxela, this community has successfully integrated an advanced AI video alert system with its existing nurse call systems, markedly decreasing the incidence of falls. This seamless integration fosters user familiarity and trust by incorporating the new technology into well-established care routines. The project showcases how Care Village Lile is setting a new standard in elder care, prioritizing resident safety and elevating quality of life through smart, preventive AI-driven measures.

Safety Technology Category

Fall Detection, Notification, and Prevention

System Embodiment

Sensors embedded in the environment: vision sensors coupled with highly sophisticated fall detection algorithms using artificial intelligence (AI).

VCare is an AI-powered fall detection and prevention solution that can be installed in residents' own homes, private rooms, and/or common areas in congregate living settings (such as assisted living or nursing home communities), as well as in hallways of the latter settings. VCare uses a CMOS vision sensor that detects particular motions, such as bed or chair exits, and sends a notification to the designated caregiver's mobile device. This allows staff to arrive and assist before a fall can occur. VCare also detects actual falls and acts as an added security layer, especially during the night when the rooms are often closed and communities have lower staffing levels. The AI sensor is 99% accurate in detecting true fall events while reducing the potential for annoying false alarms by 99.8%.

Business Model

Standard of Care and Other Payment Sources

Implementation Approach

Introducing new technology into care facilities can be met with hesitation, given the established workflows that care teams are accustomed to. However, Care

Village Lile recognized the transformative potential of Voxela's advanced AI and took a proactive approach.

They deployed the 'N-System-AI' solution, which seamlessly integrated Voxela's AI-powered fall detection alerts from cameras into the existing nursing care records N-System. This smooth integration was made possible through Voxela Camera AI's comprehensive API and webhooks, ensuring that the care team could adapt without disruption. Upon the successful deployment of the N-System-AI integrated solution, Voxela initiated its trial phase. This system is designed not only to detect falls with high precision but also to provide instantaneous notifications to the staff directly on their cell phones. This ensures prompt response and intervention, minimizing potential injuries and complications for residents. Furthermore, the system adds an extra layer of documentation efficiency: each detected fall is automatically logged into the N-System-AI Electronic Health Record (EHR) system as a nurse care record. This seamless integration not only aids in maintaining comprehensive patient records but also streamlines the documentation process for the nursing staff, allowing them to focus more on patient care and less on administrative tasks.

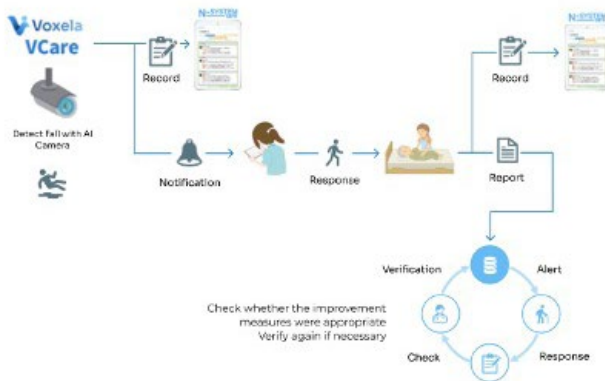
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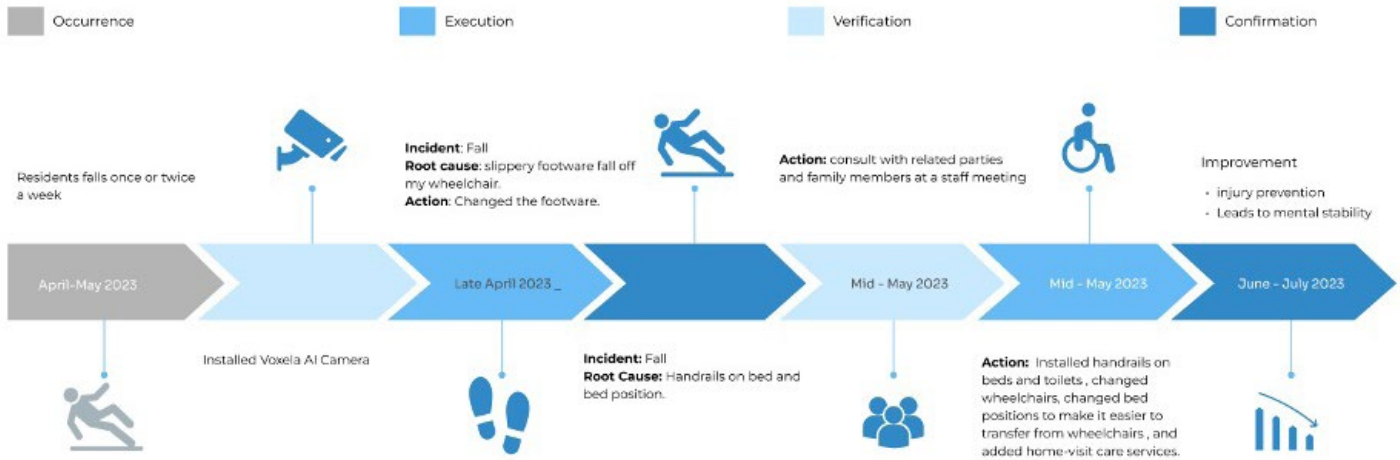
Before the introduction of Voxela AI, falls were a recurring issue, happening once or twice a week. To address this, the community installed Voxela AI, a system designed to detect falls and identify their root causes. Shortly after its installation, a fall was detected, and the system helped caregivers pinpoint the cause: slippery footwear that led to a wheelchair mishap. The immediate remedy was a change in footwear.

A subsequent fall a week later was attributed to missing handrails on the bed and its poor orientation. Armed with insights from Voxela's video recordings, the care team discussed with families and staff, ensuring effective communication and fostering trust.

The collaborative decisions made were tangible. Handrails were installed on beds and toilets, wheelchair designs were revamped, and bed positions were adjusted for smoother transfers. These measures effectively curbed fall incidents, drastically minimizing injury risks. Caregivers even noted the positive impact on mental stability. Due to these promising results, the facility was inspired to install in-room cameras across all the rooms in the facility, further enhancing safety.

Workflow of how Voxela AI and N-System integrated solution operate





The community experienced a multitude of benefits from the integration of the solution, ensuring a holistic approach to resident care:

Enhanced Pre-Residency Planning: The solution furnished comprehensive insights into room layouts and care plans. This led to the introduction of an in-depth move-in checklist, enabling the community to gather extensive information about incoming residents. Leveraging these insights, they crafted care plans tailored to individual needs, ensuring a smoother transition for residents and setting a foundation for optimal care right from the outset.

Proactive Care Plan Revisions: The technology played a pivotal role in enhancing daily routines for residents. A case in point is a resident who, during the trial phase, exhibited a change in sleep patterns. Despite being put to bed at conventional hours, he often couldn't call asleep until late into the night, leading to discontent when awakened at his regular time. By analyzing his sleep behavior, caregivers deduced the underlying issue and augmented his daytime activities. This adjustment not only fostered a healthier sleep cycle but also contributed to his overall well-being.

Quiet Falls Detection and Prevention: The technology's sophisticated fall detection capabilities proved invaluable. An illustrative example is a resident who frequently experienced unnoticed falls during her nighttime bathroom visits. While she managed to rise each time without alerting caregivers, the

technology promptly notified them of such incidents. This timely intervention not only ensured immediate assistance but also facilitated the early detection of minor injuries that could have escalated if untreated. After consultations with family members and the care team, the community activated Voxela's bed-exit detection. This feature now alerts caregivers whenever the resident sits on the bed's edge during nighttime, preemptively mitigating potential fall risks.

“As a caregiver, I noticed that residents often felt embarrassed and burdened mentally after a fall, frequently apologizing with an “I’m sorry.” However, with the introduction of the Voxela AI Camera, they began to feel supported by technology. Once I explained how this innovation significantly aids us in their care, I could see a palpable sense of relief in them, and I too felt reassured”

—Mitsuoka

Challenges and Pitfalls to Avoid

Navigating the installation of Voxela’s vision sensors in the large rooms of Care Village Lile required a strategic approach to overcome inherent challenges. Given the larger-than-average room size, a tailored camera setup was critical to capture motion in all regions effectively. The precise placement was key: one sensor was installed close to the bed to monitor the high-risk area for falls during bed entries and exits. A second sensor was positioned at the room's entrance, where the frequent traffic heightened the potential for falls. This

Careful placement of dual sensors has since ensured comprehensive monitoring without fail. It underscores the necessity of a customized plan for sensor installation in large spaces, considering both area dimensions and traffic patterns, to provide robust coverage and enhance the installation efficiency, ultimately ensuring the safety and security of residents.

Lessons Learned/ Advice to Share with Others

Introducing new technology in health care settings can often meet resistance, especially when it disrupts established workflows. In Care Village Lile, we encountered this hurdle with the caregivers' deep familiarity with their N-System. To facilitate a smoother transition, we chose not to impose our standalone Voxela app. Instead, we utilized Voxela's API and webhooks to integrate our solution directly into the N-System. This approach aligned new alerts and video capabilities with their existing procedures, providing a seamless experience for the staff. This strategic integration proved to be a pivotal step, substantially reducing the onboarding process, diminishing the learning curve, and accelerating proficiency across the team. This experience highlights the importance of adaptability and the value of customizing solutions to fit into the fabric of current systems for enhanced adoption and efficiency.

Our engagement with the caregivers at Care Village Lile revealed their need for a consolidated weekly summary

to support their review sessions. We learned that each Monday, a senior caregiver would meticulously examine the past week's incidents, evaluating the care provided and deriving insights for continuous improvement. These findings are shared in weekly huddles, fostering a culture of learning and enhancement. Recognizing their requirement for an accessible and integrated reporting tool, we introduced a weekly reporting feature within the existing system. This addition streamlined the process, offering comprehensive incident reports accompanied by video evidence for in-depth analysis. The new feature has since become a cornerstone of their training regime, significantly contributing to the refinement of care practices and staff development. This refinement underlines the importance of listening to client needs and customizing features to complement and enrich existing operational ecosystems.

Through the integration of Voxela's technology with Care Village Lile's existing N-System and the subsequent addition of a tailored weekly reporting feature, we've not only streamlined the adoption of new technology but also enriched the caregivers' ability to reflect and improve upon their practices. These modifications have demonstrated that thoughtful technological enhancements, when effectively aligned with user needs and existing workflows, can lead to significant advancements in care quality and operational efficiency.