

SafeGuard-Detecting and Minimizing Wandering Incidents of Children and Adults with Disabilities

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A common behavior among persons with developmental disabilities (PWDD) is wandering from their residence- the act of leaving without supervision or permission. Wandering places PWDD at elevated risk for psychological harm, serious injury or death. It is often neighbors and first responders who locate missing PWDD. Wandering prevention is a community effort.

Goals

- Anticipate wandering intent via unobtrusive monitoring techniques.
- Predict when wandering might be imminent through behavioral analytics.
- De-escalate wandering incidents.

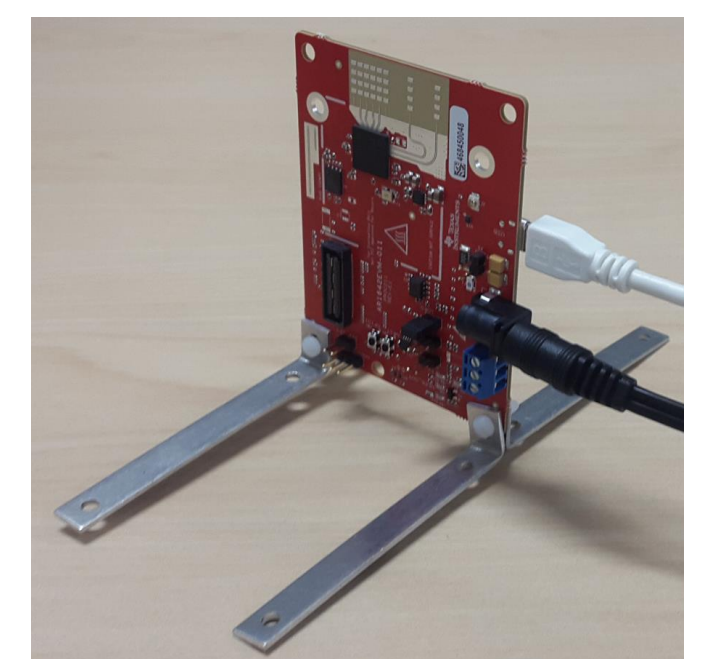
Intellectual Merit

SafeGuard is a suite of non-invasive technologies to detect, mitigate, and de-escalate wandering events. From a technical perspective, this system-of-systems can be integrated with low-cost, commercial hardware into existing residences. From a social-science perspective, *Safeguard* includes predictive intelligence to identify individuals at greater risk of wandering.

Project Activities

- Formed an Advisory Group of stakeholders to share their experiences with wandering and develop a focus-group interview guide.
- Visited group homes and reviewed spatial layouts for sensor installations.

- Developed an understanding of various sensing modalities to assess their suitability in interpreting and predicting wandering-related user behavior.
- Explored: ultrasonic proximity sensors, light-based time-of-flight sensors, and a mmWave sensor.
- Investigated a combination of multiple low-cost sensors for improved scalability.



Immediate Impact

- Promote safety by minimizing wandering.
- Improve the quality of life for PWDD, their families and caregivers.
- Detect when PWDD breach a physical threshold and become a risk.

Broader Impact

We will translate solutions to other domains where wandering is a concern (e.g., among adults with Alzheimer's or dementia, or young nondisabled children) and engage researchers in the disability space to illustrate the breadth of opportunities that it holds for innovation.

Next Steps

- Grant submitted to the Autism Science Foundation to understand wandering behaviors among individuals with profound autism who are nonspeakers.
- Exploratory study of 2 PWDD who wander. Indirect sensing will provide insights into day-to-day behavior leading up to the wandering event.