



LUCI

SIERRA
WIRELESS®



LUCI gives wheelchairs smart driving capabilities to help avoid collisions and falls

Almost 1% of the world's population depend on wheelchairs for mobility. To date, there has been very little technology developed for wheelchairs. LUCI has created a unique platform that improves user independence and safety.

QUICKFACTS

Company

LUCI
www.luci.com

Customer Profile

LUCI was founded by Barry and Jered Dean, brothers who were driven to innovate from personal experience and are committed to creating change for people living with disabilities. LUCI is bringing smart driving capabilities to wheelchairs to help avoid collisions, drop-offs and falls, giving users unparalleled stability and security.

Objectives

- Once the safety system was complete, LUCI wanted to create a connected solution that could send real-time notifications to the wheelchair user or designated members of their support team for potential threats, status alerts, or situations requiring assistance.

Results

- LUCI has reimagined modern mobility with a unique hardware and software platform that allows a power wheelchair to 'see' its environment, giving riders unprecedented stability, security and cloud connectivity

Sierra Wireless Products and Services

- HL7800 LPWA module, Enhanced Carrier Connectivity



“ We chose Sierra Wireless because the company offered us a unique integrated solution. The common form factor will make future product development faster, and its global presence ensures we have the support we need.



Peter Knapp,
COO, LUCI

BACKGROUND

Based in Nashville with R&D headquarters in Denver, CO, LUCI was founded by Barry and Jered Dean, brothers who were driven to innovate from personal experience and are committed to creating change for people living with disabilities. LUCI is bringing smart driving capabilities to wheelchairs to help avoid collisions, drop-offs and falls, giving users unparalleled stability and security.

CHALLENGE

Approximately 1% of the world’s population - over 75 million people - use a wheelchair on a daily basis.¹ For those with mobility challenges, wheelchairs are considered a personal space, and represent freedom and independence in day-to-day life.² But wheelchairs can be dangerous, with collisions, tip overs and falls commonplace, oftentimes resulting in serious injury. A case-control study found that in a three year period, 87% of wheelchair riders reported a tip or fall.³ Another study reported that in the last year that data was tracked, hospitals reported 175,000 emergency room visits from wheelchair accidents, 30,000 of which were serious enough to warrant admission.⁴

Until now, there has been almost zero technology on power wheelchairs. Indeed most appliances, such as a toaster or coffee machine, contain more smart technology. LUCI uses similar technology found in autonomous vehicles, and while universities and research institutions are trying to build autonomous wheelchairs, LUCI’s experience with many riders is that they are not interested in being “driven” autonomously. Instead, wheelchair users want confidence, freedom and independence to safely operate their wheelchair on their own.

To help ensure the safety of the riders, LUCI wanted to create a connected solution that could send notifications to the wheelchair user or designated members of their support team for any potential hazardous threats or situations requiring assistance.

“ We were able to reduce our development time and shorten our time to market, and with Enhanced Carrier Connectivity, we can simplify deployment and optimize coverage of the product for our customers. ”

Peter Knapp, COO, LUCI



SOLUTION

LUCI is a first-of-its-kind hardware and software platform, that attaches onto a power wheelchair. The device connects reliably to cellular networks using the Sierra Wireless HL7800 low-power wide-area (LPWA) module to help notify a wheelchair user of potential hazardous threats, while also sending programmed emergency contacts notifications about any falls and hazardous situations the wheelchair user is in. A low power solution was critical to minimize the impact on the wheelchair battery.

LUCI is installed between the power base and seat, and is compatible with two thirds of all wheelchairs on the market. It helps riders avoid collisions and dangerous drop-offs while maintaining personalized driving control. LUCI's cloud-based capabilities alert users and caregivers of low battery, possible tipping scenarios and other updates regarding the chair and rider. With LUCI, the wheelchair becomes aware of the user's reaction time, resulting in an improved user experience. The product is bundled with software including over-the-air updates, installation and data services.

LUCI is making wheelchairs smarter, safer and connected to real-world technology, such as Amazon Alexa or Hey Google devices.

BENEFITS

“At LUCI, we're reimagining modern mobility with a unique hardware and software platform that uses sensor-fusion technologies to allow a power wheelchair to 'see' its environment, giving riders unprecedented stability, security and cloud connectivity,” said Peter Knapp, COO at LUCI. “Often, people in wheelchairs avoid situations because navigation is too difficult, stressful or dangerous. We hope that LUCI will be life changing for many people living with disabilities and open up new opportunities for freedom and independence.”

-
1. <https://www.inclusivecitymaker.com/disabled-people-in-the-world-in-2019-facts-and-figures/>
 2. <https://www.aruma.com.au/about-us/blog/8-facts-you-need-to-know-about-using-a-wheelchair/>
 3. <https://pubmed.ncbi.nlm.nih.gov/21621665/>
 4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2563507/>

About Sierra Wireless

Sierra Wireless (NASDAQ: SWIR) (TSX: SW) is the leading IoT solutions provider that combines devices, network and software to unlock value in the connected economy. Companies globally are adopting IoT to improve operational efficiency, create better customer experiences, improve their business models and create new revenue streams. Whether it's a solution to help a business securely connect edge devices to the cloud, or a software/API solution to help manage processes associated with billions of connected assets, or a platform to extract real-time data to make the best business decisions, Sierra Wireless will work with you to create the right industry-specific solution for your next IoT endeavor. Sierra Wireless has more than 1,300 employees globally and operates R&D centers in North America, Europe and Asia.

For more information, visit www.sierrawireless.com.

Connect with Sierra Wireless on the IoT Blog at www.sierrawireless.com/iot-blog, on Twitter at [@SierraWireless](https://twitter.com/SierraWireless), on LinkedIn at www.linkedin.com/company/sierra-wireless and on YouTube at www.youtube.com/SierraWireless

Sierra Wireless, the Sierra Wireless logo, AirPrime, AirLink, AirVantage and the red wave design are trademarks of Sierra Wireless. Other registered trademarks that appear on this brochure are the property of the respective owners. © 2020 Sierra Wireless, Inc. 2020.11.17