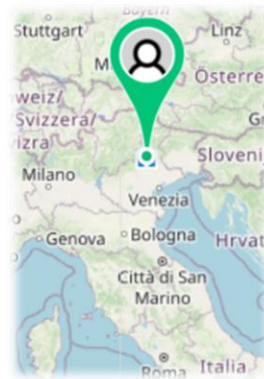


Tracking a Special-Needs Adult on Daily Bus Journeys in Italy

User's Problem

A young adult with special needs travels daily by bus from home to her job in a nearby town in North-East Italy. After she was targeted and robbed, her parents want to be reassured that she successfully completes her journey each way, and if she gets lost that they can find her quickly. Both parents are at work while she takes these bus journeys.

Challenges: The area is rural, with poor mobile coverage, so the solution needs to be robust and to keep alerting on the limits of coverage, as well as carefully managing battery consumption so Elsa's watch always has several hours of battery at the end of each day in case she goes missing.



Implementation of solution

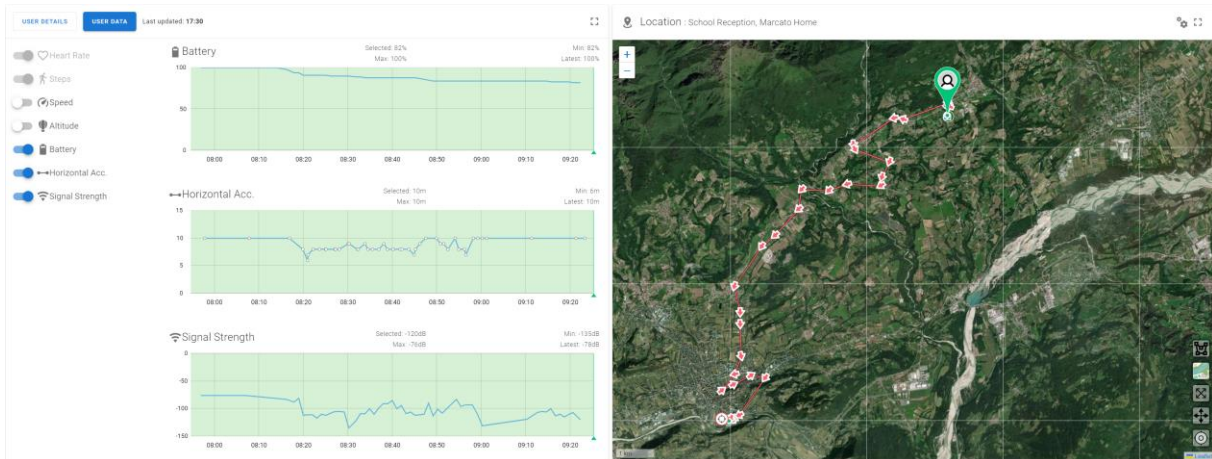
Solution: Since February, Elsa has been wearing Zembro Wander Alert. This is a wearable solution, using the mSafety wristwatch from Sony connected to the Zembro SafeTrx platform over the LTE-M cellular network of Vodafone Italy. Wander Alert uses a combination of GPS and Bluetooth beacons for outdoor and indoor tracking, and automatic alerting is managed by geofence zones.

Elsa's parents purchased the Zembro Wander Alert solution from the Zembro.com website, with the optional lockable strap and extra beacons. Beacons were deployed in Elsa's home, her neighbour's home (where she sometimes spends time), and in the school where she works, which is approximately 15km away.

Simple circular safety zones were implemented around the home and the school.

Operation

Every journey undertaken by Elsa generates an alert which is received by all family members as SMS messages and emails. Each message contains a link which they can click to see Elsa's journey and current location, updated every minute while she is outside her home or school. Once she arrives safely at school or home the alert is automatically closed. Alert data remains visible for 24 hours, and Elsa's full location history is available via Zembro customer support should there ever be a need to access historical data.

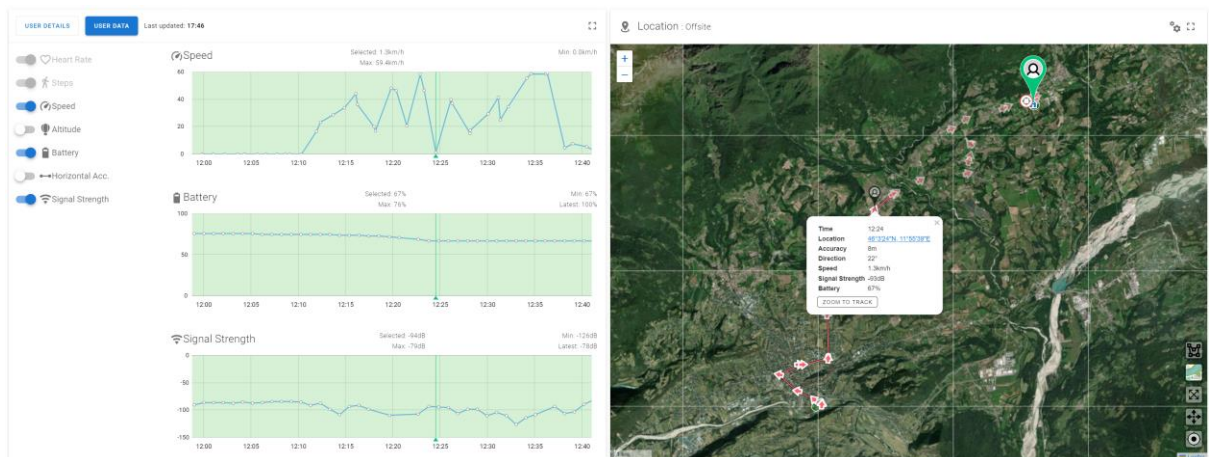


“We are the parents of an autistic young lady whose speech abilities and problem-solving abilities are quite compromised. Our challenge, in trying to work on her autonomy when travelling or moving outside the house, is to know exactly where she is, to be able to reach her in case she is not where she is supposed to be at a given time. Her sense of danger is different from ours, and many potentially dangerous social situations are not perceived as such by her.

“Lately, for example, two young men approached her at the bus stop, and asked her to take a walk with them: she did, unable to see the potential danger, and we’re lucky that the only harm they caused is that they took away all her money. After this event, we decided to buy the Wander Alert watch, which is giving us more serenity in letting her move alone outside the house. We can easily keep track of her movements and know when she leaves the house, if we are already out at work.

“What I like the most about this watch, of course beyond the fact that I have a detailed track of her movements, is that it works with low-power signals. Also, a watch is difficult to forget, whereas it has already happened that our daughter has left home without her mobile.”

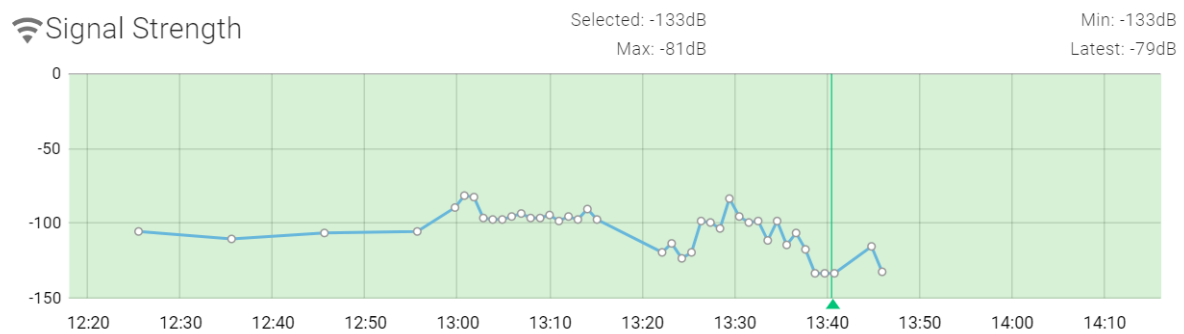
- Grazia, Elsa’s Mother



Challenge encountered: LTE-M signal strength

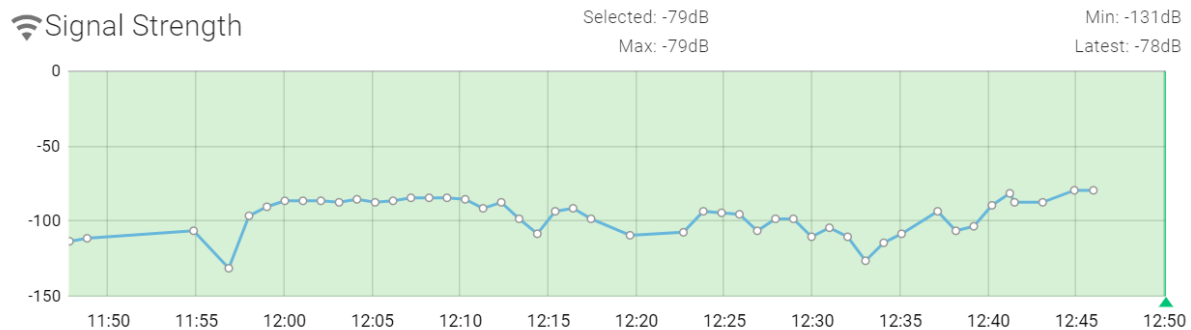
Elsa lives in a rural area, and the LTE-M network of Vodafone Italy is new, so coverage was limited. In the early days of deployment, Elsa had no coverage near her home. This was surmountable, because Wander Alert can save locations and upload them later when back in coverage, but Zembro engaged with Sony and Telenor (the SIM provider) to improve coverage.

In response, Vodafone Italy boosted the LTE-M signal coverage and now Elsa's watch has complete coverage around her home, offering a higher level of security.



LTE-M received signal strength before Sony intervention. Note the mSafety wearable is capable of communications with signal strength lower than -135dBm, which is significantly more sensitive than a mobile phone.

Below, the improved signal strength following Vodafone Italy upgrade.



No other challenges were encountered. The solution works as designed, and battery consumption is typically less than 25% per day for Elsa's usage.

Conclusion:

Elsa's parents are very happy with the solution, bringing them peace of mind and security to their daughter.

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