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Addressing Medication Adherence with the Soracom LTE-M Button

Highlights

☑ **Improving Medical Adherence**

RxKeeper makes it easy for users to remember to take their medicines when they should, thereby improving health outcomes and creating measurable data trails.

☑ **A Solution That Fits Into Users' Lives**

The RxKeeper box fits naturally into user's lives by replacing their medication containers with a device that monitors their usage.

☑ **A Deceptively Simple Solution**

The RxKeeper is powered by the Soracom LTE-M button, providing a simple solution to a complicated problem.

RxKeeper is a medication fulfillment device designed to help users adhere to prescribed medication schedules without interfering in their daily lives. The device is a medication container that can securely store prescriptions, remind patients to take their medication with an alarm, track medication usage, and alert medical personnel about medication adherence.

The device also boasts a self-contained input feature that allows users to make notes and share comments with their medical practitioners without needing a smartphone app or any additional equipment.

Nagesh Kadaba, the founder and CEO of RxKeeper's parent company, Status Alert, was inspired to solve a challenge he witnessed first-hand while caring for his family.

"It all started with my 92-year-old mother and 90-year-old mother-in-law who were living with us," said Kadaba. "Each was taking 10 or more medications per day, and given our own busy lives, we needed something to remind us to make sure they are taking their meds on time, if at all."

They set out to create a simple and efficient device that could help people track their medication usage but recognized that the real challenge faced by these kinds of solutions is adoption.

"It's the 90-10 rule," said Kadaba. "While 10 percent of folks might actually need the sophisticated solution, the other 90 would benefit from a much simpler solution that already fits into their daily routines."

Early in the design process, Kadaba and his team settled on tracking and monitoring medication usage by taking advantage of something every patient already had: the medication's container. They envisioned a small box that could not only house prescriptions but also monitor any attempts to access them. Further iterations added a digital interface that could alert users when it was time to take their medicine, but the team wanted more for their device.

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You create. We connect.

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>
> **Nagesh Kadaba**
> CEO, RxKeeper

The Challenge

Creating a Medication Tracker that Fits into Daily Life

At its core, the device required a simple mechanism that could register events and other inputs from the box without taking up much space or processing power. To better suit the function of day-to-day use, the box also needed to be portable, which meant that the device needed to be battery-powered rather than being tethered to a cable or plug.

To share data with primary caregivers and medical professionals remotely, the team briefly considered local reporting tied to a smartphone app, but found that this added complexity and created another step in a process that has proven difficult for some to follow, and a technical barrier for patients who may not be confident using mobile applications or operating a smartphone.

Early designs opted for a WiFi connection, but the team quickly discovered that WiFi is not always available as it might seem, especially for people living in remote or rural areas. WiFi would also tether devices to gateways or specific areas of the house with stronger signal, which limited the efficacy of the solution. As such, cellular connectivity was also considered, though service would need to be widely available enough to help serve those remote customers.

The Solution

A Solution as Simple as Pressing a Button

Once cellular connectivity had been identified as the preferred method for data transfer, Kadaba began researching partners before eventually selecting Soracom. Soracom's multi-carrier support and automatic failover were attractive enough, but what really caught Kadaba's eye was the **Soracom LTE-M button**, an easily programmable smart button that offered both the simplicity he required and an endemic LTE-M connection that allowed the device to connect seamlessly to the broad Soracom network.

"I found the functionality I was looking for in the LTE-M Button," said Kadaba. "The magic of this button is it is simple and it works in almost any situation you can imagine. By tracking patient usage, clinicians, medical providers, and even the patients themselves can all make better decisions."

RxKeeper also deploys **Soracom Funk**, a service for dynamically offloading cloud service function calls, to help route the data from all of its deployed devices directly to its backend service on AWS. By offloading the data transmission process to the cloud, the RxKeeper team reduced device-side resource consumption and allowed for more flexibility in integrating their devices into existing medical solutions.

"Having the ability to send data out and not worry about it until it hits the AWS server was a huge thing as a business owner," said Kadaba. "That helped solve a lot of the issues we face as an out-of-the-box solution."

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A Medical Compliance Device That Fits Into Users' Day-to-Day

The RxKeeper fits effortlessly into a user's daily life, serving as both a container to organize medications and a means of medication adherence through its clever use of IoT data and simple alerts. Kadaba again credits a great part of its efficacy to the use of the Soracom LTE-M button.

"When you go in the super rural areas, basements, or areas with geographical challenges, it becomes harder to get 4G signals," said Kadaba. "In those situations, we sent out an LTE button version of the RxKeeper, and it works flawlessly because LTE-M has far more penetration into buildings and structures, which has helped us reach a broader patient group."

In the future, the RxKeeper team hopes to continue evolving its capabilities to better serve the needs of patients throughout the country and beyond.

Service in Use
Soracom Air: Cellular IoT Connectivity Over GSM, 4G LTE and Cat-M1
Soracom Funk
Soracom LTE-M Button

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