Safer Automated Medication: The Right Prescription for Every Patient

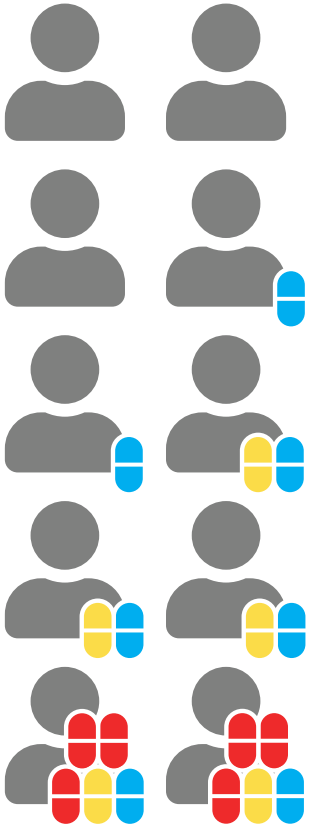
ZIUZ. medical + code

How do you improve patient safety worldwide? With visual intelligence and near-100% barcode reading.

ZiuZ Medical, a global visual intelligence company based in the Netherlands, set out to help pharmacies using automatic dose dispensing systems to package patient medications accurately without fail. When a pill leaves the bottle, it loses its identity—transferring from one staff member to another becomes a risky transition—many pills look so similar.

Automatic dose dispensing came to the rescue with the ability to individually package pills together so that only the medicines intended for a specific patient are delivered to that patient. But what happens if the wrong pills get packaged during that automation process? Recognizing the potential for catastrophe, ZiuZ Medical stepped up to help.

Prescription numbers based on a Mayo Clinic & Olmsted Medical Center study (1)



Using 13 padrameters, near-infrared (NIR) image analysis technologies, and intelligent algorithms, ZiuZ can identify each medication in the packs during the automated process. While the pouches pass at a rate of 6 inches per second, each one is approved or rejected—ensuring only the correct medication is delivered to each patient.

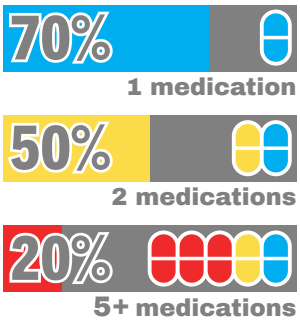
Getting a Grip on Quality

One of the most crucial elements for patient safety is dispensing the right drugs every time—no matter the workflow. With treatments being so individual, ensuring each patient gets the correct dosage of the correct medication is vital, and errors can be fatal.

The study "Medication errors: the importance of safe dispensing" by the British Journal of Clinical Pharmacology, states common causes of dispensing errors: being busy or short-staffed, dealing with time constraints or fatigue, mid-dispensing interruptions, and look-alike/sound-alike medicines (2).

Dose dispensing machines have been recommended to improve efficiency and patient safety, and they are now in use in many hospitals (3). While demonstrably increasing efficiency, their capacity to reduce medication errors is controversial and depends on many factors.

In answer to the quality control battle, ZiuZ Medical created an intelligent solution incorporating the industry's best image-based barcode scanning software from Code Corporation. Patients' lives depend on the contents of each pill pack being identified with 100% accuracy—making automated dose dispensing a healthcare win from any perspective.



Testing, Testing, 1 2 3

The task was identifying each pill in a medication pack and comparing them to the list of what should be in the pack—to catch discrepancies. The process also needed to accommodate difficult-to-ID medications and broken pills or crumbs.

The ZiuZ intelligent system started with a detailed photograph of the transparent side of each pouch to show the contents—it then needed reliable decoding for the 2D barcode printed on the back.

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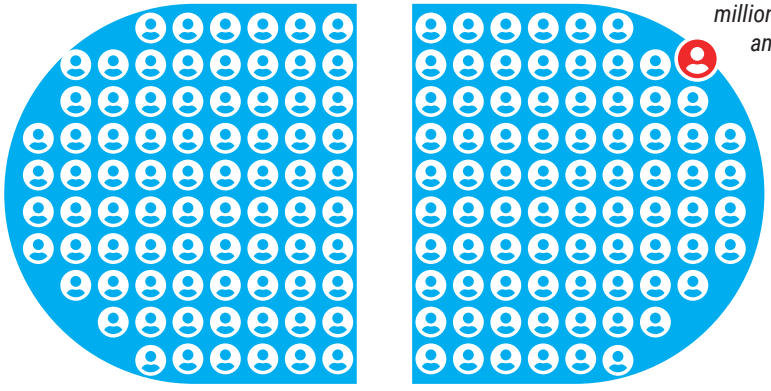

A Tough Pill to Swallow

In the US alone, around 1.3 million people are injured annually as a result of medication errors.

That equates to about 1 patient in 178 who suffers or dies from taking a prescription.

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This barcode provided the details of what should be inside and allowed the machine to make a "match or error" determination. The right decoding solution would make med-pack checks fast and accurate while reinforcing the superior product reputation of ZiuZ.

Before finding Code, ZiuZ used a decoder with an error rate of .05% (1 misread in 200). The potential for catastrophe was clearly unacceptable to ZiuZ—leading them to search for a decoding algorithm that would meet the critical demands of their application.

The ideal decoding software for ZiuZ needed to deliver in three ways:

- Error read rate as close to zero as possible
- 2D barcode reading of barcodes moving at about 6 inches per second
- Decoding from shiny, thin, and even wrinkled foil packs with compromised readability

Finding a barcode decoder to meet these exacting requirements seemed impossible at times. The decoding platforms ZiuZ tested each came with an issue preventing them from reaching the high standard. The benefits of the ZiuZ system and its ability to provide life-saving care to patients kept them searching for a decoder that would bring them higher reliability.

Want industry-leading scanning for your product?

Are you an OEM looking to improve efficiency and accuracy? CortexDecoder is a high-performance decoding algorithm that works on any platform or OS providing results that will make you wonder why you didn't make the move sooner.

By pairing CortexDecoder with the latest imaging technologies, you can deliver a market-leading product. Provide your customers with true enterprise-grade barcode scanning capabilities and zero-miss performance—even in less than ideal scanning environments or on damaged barcodes.

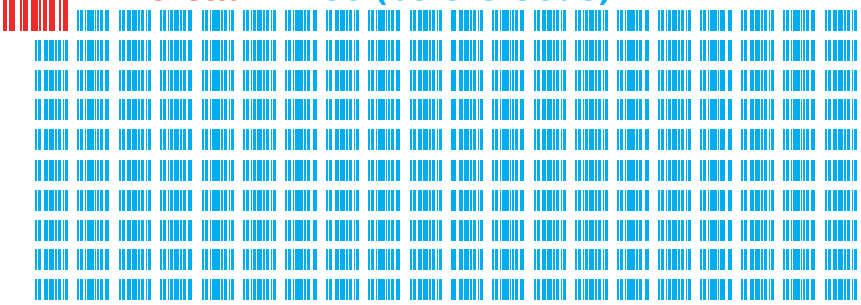
Interested in learning more about the SDK features or test driving our tech for yourself? Contact us today: 801-495-2200, or info@codecorp.com.

CORTEXDECODER®

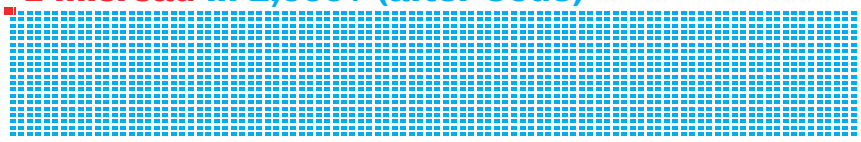
Enterprise Barcode Scanning Precision

ZiuZ was impressed with the power and versatility of CortexDecoder. A simple test drive of the enterprise SDK was all it took to convince them to incorporate it in their solution. The result? CortexDecoder has delivered a scanning experience that exceeded all of ZiuZ's expectations.

1 misread in 200 (before Code)



1 misread in 2,000+ (after Code)



"CortexDecoder provides the scan performance we have been looking for," says Johan van Duijne, Product Manager for ZiuZ Medical. "Not only did the decoder perform better in our machines than we expected, but the customer support provided by the team made choosing their decoder even easier."

As pouches zoom by at 6 inches per second, CortexDecoder reads the barcode with industry-leading reliability, allowing for quick and accurate verification. Thousands of test barcodes were scanned before a single error was identified. ZiuZ Medical found that integrating CortexDecoder increased efficiency, and more importantly, patient safety worldwide.

(1) *"Nearly 7 in 10 Americans Take Prescription Drugs, Mayo Clinic, Olmsted Medical Center Find." Available from: https://newsnetwork.mayoclinic.org/discussion/nearly-7-in-10-americans-take-prescription-drugs-mayo-clinic-olmsted-medical-center-find/* **(2)** *Cheung, Ka-Chun, Marcel L Bouvy, and Peter A G M De Smet. "Medication Errors: The Importance of Safe Dispensing." British Journal of Clinical Pharmacology 6 (2009): 676–680. PMC. Web. 12 July 2018. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2723208/* **(3)** *Guidance on the interdisciplinary safe use of automated dispensing cabinets Horsham (PA) Institute for Safe Medication Practices; 2008 [cited 2009 Sep 8]. Available from: http://www.ismp.org/Tools/guidelines/ADC_Guidelines_Final.pdf*