



Business challenge

To monitor and control the rice volumes in silos, workers at Urbano Agroindustrial Ltda. had to climb the silos and manually verify rice levels, a process that was dangerous, inaccurate and costly.

Transformation

The company engaged IBM Business Partner Senior Sistemas S.A. to deploy its Senior Smart Grain Control System, built using IBM® Cloud™ and IBM Watson® offerings. The tool uses LED-based sensors and optical receivers to capture the volume of stored grains and notifies line leaders using text messaging when silos are filled.



Marcio Jasinski
 Leader, Applied Research Team, IBM Business Partner Senior Sistemas S.A.

Results

≤30% drop in potential costs
 or millions of Brazilian reais (the country's currency) monthly, with better planning and less overtime

5% decrease in time spent monitoring silos
 by automating the process with sensors and optical receivers

Reduces risk of silo accidents
 by eliminating the need for workers to climb silos to visually assess rice levels

Urbano Agroindustrial Ltda.

Revolutionizing silo monitoring with Senior Sistemas S.A. Smart Grain Control System and IBM offerings

Headquartered in Jaraguá do Sul, Brazil, **Urbano** is one of the country's leading grain producers. Its two rice brands, Urbano and Tio Urbano, and its Máximo bean brand each rank among the five most popular food products in Brazilian supermarkets. The company operates facilities, which together span more than 22 acres, in São Gabriel, Meleiro, Sinop, Pouso Redondo, Cabo de Santo Agostinho, Guarulhos and Ponta Grossa. Urbano was founded in 1960 and employs over 850 people.

“Many of the solutions we developed would not be possible without IBM involvement.”

— Marcio Jasinski, Leader, Applied Research Team, IBM Business Partner Senior Sistemas S.A.



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Assessing silo levels manually

A single long grain of rice weighs a mere 0.001 ounce; yet, in 2016, people consumed more than 475 million metric tons of the seed worldwide. For Urbano, milling and warehousing the grain is serious business. The company processes over 45,000 tons of rice, beans and rice noodles each month and stores more than 320,000 tons of rice in shell and beans in its processing plants. Each plant consists of 12 32-foot high internal silos and as many as 20 50-foot high external silos.

Although rice milling is highly automated, the process of monitoring and controlling the volume of stored rice in internal silos is not. Marcio Jasinski, Leader of the Applied Research Team at Senior Sistemas, explains: “The process requires a person to climb every silo and verify the rice level inside. It’s dangerous and inaccurate, and the lack of control can cause spillage and production delays. In addition, because Urbano operates at full capacity on weekends when power costs

are lower, it can be difficult and expensive to call in extra employees if something goes wrong.”

Safely sensing silo volume

To help Urbano, Senior Sistemas developed the Senior Smart Grain Control System, an Internet of Things (IoT) solution built using the IBM Cloud platform. The IBM Beacon Award-winning system employs LED-based sensors and optical receivers to capture the volume of stored grains and notifies line leaders using text messaging when silos are filled.

The system also sends data to executive dashboards where a cognitive bot, powered by the IBM Watson Assistant service, lets managers interact with the system in real time. “We are the first company in Brazil to create a chatbot for the agribusiness industry,” adds Jasinski. “Executives can inquire about the conditions of different silos, such as temperature and humidity, and the bot will answer.”

The dashboard also displays production rates, volume history and predictions of future production.

“By seeing the information from a single screen, they don’t need to send people out to check. They have a very nice way of making decisions to improve productivity,” states Jasinski.

Saving money, protecting lives

With real-time data about the level of rice that is ready for packaging and more accurate views into silo capacity, Urbano cut silo-monitoring time by five percent. And by better anticipating workflow and honing production schedules, the business anticipates lowering weekend overtime costs for its 12-silo plants by as much as 30 percent, or millions of Brazilian reais (the country’s currency) monthly. Savings might be even higher on larger plants.

“With this solution, they just go to their monitors and get the whole picture. They can plan how the production line is going to flow, and they don’t need to pay for extra hours. And because no one needs to manually check the silos, there’s reduced risk of silo accidents,” concludes Jasinski.

Solution components

- IBM® Cloud™
- IBM Watson® Assistant
- Senior Sistemas S.A.

Take the next step

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