Panasonic
ideas for life

CHILEAN MINERS RESCUED WITH HELP OF TOUGHBOOK MOBILE COMPUTERS AND ZEPHYR TECHNOLOGY'S BIOHARNESS BT

On October 13, 2010, a group of 33 Chilean miners was rescued after being trapped approximately 2,000 feet underground for 69 days, marking the end of the longest-ever mining rescue operation. Their successful rescue was not secured through the brute force of mining equipment alone. Zephyr Technology's BioHarness™ BT, a device that allowed rescuers to monitor the health of the stranded miners, fed information to Panasonic Toughbook® U1 and 29 computers. This technology played a critical role in the rescue efforts.

When the news broke that 33 miners were trapped underground in the collapsed San Jose mine in Chile's Atacama Desert, the world anxiously hoped for a successful rescue. Seventeen days after the mine collapsed, rescuers discovered that all 33 miners were still alive. With access to the mine tunnels blocked, rescue crews decided the best way of reaching the men was to drill a shaft and lift them to the surface using a custom-designed capsule called the Phoenix.

To assist in the operation, the Chilean government secured the assistance of a Santiago, Chile-based company that works with businesses to determine the physical conditions of workers in their operating environment. Once on site, this company began assessing the miners' physical and psychological state. One of the critical pieces of technology involved in monitoring the miners' condition was the BioHarness BT from Annapolis, Maryland-based Zephyr Technology.

Zephyr is a global leader in real-time physiological and biomechanical monitoring, or Physiological Status Monitoring (PSM), solutions for connected health, fitness and academic research markets. The company's BioHarness BT utilizes a Smart Fabric sensor and Bluetooth® technology to capture and transmit comprehensive physiological data. Without the ability to send doctors down the shaft, the BioHarnesses provided doctors a way to assess the current physical and mental state of the miners.

The BioHarnesses were sent down in small cargo tubes, nicknamed "palomas." The devices were then sent back to the surface and loaded on a fully-rugged Panasonic Toughbook 29 located in the command center. This allowed the rescue team to determine the best order for the miners' rescue and to understand how each miner would respond under stress while in the capsule. Designed to withstand severe heat or freezing temperatures, as well as dust and significant drops, the Toughbook 29 (the current version of this product is the Toughbook 31) was an ideal fit for command-center applications in remote, extreme locations like the Atacama Desert.

Toughbook 29

LEARN MORE:

1.800.662.3537 OR PANASONIC.COM/TOUGHBOOK

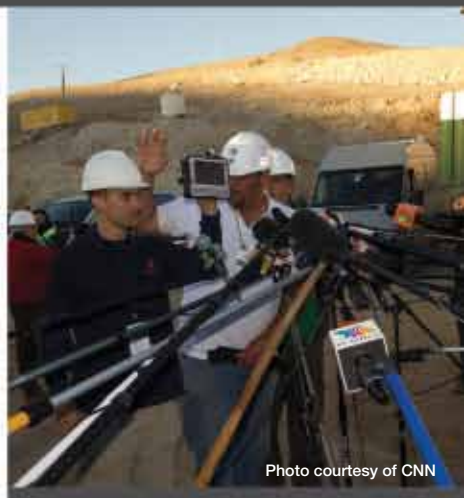

Photo courtesy of CNN

CHALLENGE

Find a solution—able to operate in extreme environments—that will monitor the health of 33 stranded Chilean miners and help ensure their safe rescue.

SOLUTION

The Toughbook U1 was paired with Zephyr Technology's BioHarness BT in the Phoenix escape capsule while a Toughbook 29 was used in the command center.

RESULT

In October 2010, all 33 miners were safely rescued from the San Jose mine with the help of the rugged Toughbook U1 and Zephyr Technology's BioHarness BT.

TOUGHBOOK
FOR A TOUGHWORLD™

TOUGHBOOK

Panasonic
ideas for life

CHILEAN MINERS RESCUED WITH HELP OF TOUGHBOOK MOBILE COMPUTERS AND ZEPHYR TECHNOLOGY'S BIOHARNESS BT

When the rescuers' drill finally broke through to the miners' workshop, Ben Morris, a field application engineer for Zephyr, arrived on the scene to educate the minister of health and other rescue workers about the technology and explain how it could be integrated and operated for optimum success. After surveying the situation, Ben decided a rugged handheld PC would be placed at the bottom of the Phoenix capsule, between the miners' feet. The BioHarness, which would measure each miner's blood pressure, heart rate and oxygen level on the way up the shaft, would feed information to this handheld computer via a Bluetooth® connection.

However, the mine was extremely muddy, humid and wet. The handheld PC needed to be small, yet fully rugged—able to survive being kicked, stepped on and dropped. Panasonic's ultra-mobile Toughbook® U1 was identified as the ideal device.

The Toughbook U1 is a rugged handheld PC that runs a full Genuine Windows® OS, offering a laptop experience in an extremely portable form factor. Weighing just over two pounds, the U1 has a six-foot drop rating, is water and dust-resistant and offers up to nine hours of battery life.

On October 13, after numerous safety checks and test runs on the Phoenix capsule, miner Florencio Avalos was pulled to the surface, followed by the other miners. A doctor was able to read the vital signs from the Toughbook U1 and treat the miners immediately with necessary care. The U1, with its Genuine Windows® OS, allowed Zephyr to run its standard OmniSense software.

Less than 24 hours after the first miner was rescued, the 33rd miner, Luis Urza, was safely pulled out of the mine—a successful resolution to an incredibly challenging rescue operation.

The technology used in the rescue mission needed to be designed to survive the harsh conditions found in the San Jose copper mine, so the Toughbook computers were a natural fit.

"With any rescue mission, reliable technology and equipment is critical to success. The combined solution of Zephyr Technology and Panasonic Toughbook mobile computers proved to be the perfect solution in our efforts to free the 33 Chilean miners," said Ben Morris, field application engineer for Zephyr. "The portability and durability of the Toughbook U1 allowed medical staff to receive the miners' vital signs as soon as the Phoenix capsule reached the surface—a critical component in the safe and healthy return of the stranded miners."

Toughbook U1

LEARN MORE:
1.800.662.3537 OR
PANASONIC.COM/TOUGHBOOK

Photo courtesy of Zephyr Technology

TOUGHBOOK
FOR A TOUGHWORLD™

TOUGHBOOK