

Safety Vision, Inc. Houston, Texas

Promoting Customer Service by Deploying a City Wide Wireless Video and Audio Surveillance System on its Entire Transit Fleet

The City of Indianapolis, Indiana - IndyGo Values Security Cameras, Promotes Safety Awareness.

Indianapolis today is a cosmopolitan blend of arts, education, culture, and sports; a city with plenty of vision for its future. Building on momentum gained in the last decade of the twentieth century, the city is in the midst of a technology and cultural quality-of-life resurgence. World-class sports, a diverse economy, the presence of healthy and successful businesses as well as innovative technology initiatives to promote municipal and community development, Indianapolis is poised and prepared to meet the challenges of the twenty-first century. As the eleventh largest city in the United States, the City of Indianapolis is world renowned for the Indianapolis Motor Speedway. The Indianapolis 500 is one of the premier international sporting events, drawing world-wide attention. Indianapolis in recent years has made dramatic strides in its national reputation through several city wide initiatives and has renovated its core historical structures, built new sports facilities, invested in the arts, entertainment, and technology.

At the heart of this progressive city is its state of the art public transportation system, IndyGo, which provides more than 8.5 million rides to people in the Indianapolis greater area who depend upon transit services to get them to and from their destinations quickly, efficiently and safely. To promote safety awareness, combat crime, shield itself from false insurance claims and help it keep tabs on its drivers and riders, Safety Vision chose AIRAYA as its equipment partner to deploy a wireless video and audio surveillance system on its entire transit fleet including Open Door vehicles. The system includes cameras that are a mix of color,

black and white and night vision.

Thanks to AIRAYA and Safety Vision, IndyGo is now seeing a reduced accident claims and a heightened awareness of the system's overall safety. Officials also will install surveillance on one of the transit agency's smaller vans, which are used for curb-to-curb services.

"Our system is safe, and people rely on that safety every time they get on our buses," said Gilbert Holmes, IndyGo President and CEO. "The security cameras give us another eye on the streets to not only observe the inside of vehicles, but to take a closer look at surrounding areas on the outside."

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"Since the installation of the system, our accident claims have dropped by 50 percent in part due to the security cameras," added Holmes.

The Challenge

Deploy a Wireless Network Which Connects the Surveillance Cameras to a Central Center.

The upload of video and audio data from a bus or other in-motion vehicle to a base station has long been a challenge because of the greater bandwidth requirements of a wireless mobile audio/video system. A standard Wi-Fi or mesh solution will have bandwidth deficiency issues where the protocol cannot handle the high stream, time sensitive data transfer from the audio and camera equipment across the wireless network. This bandwidth deficiency causes the protocol to automatically reroute to another access point causing the protocol to terminate data transmission creating high latency in the system. This has long been a problem with standard Wi-Fi solutions. With AIRAYA's user-selectable channel width and frequency capabilities real-time video streaming is truly feasible to be implemented over a wireless network. AIRAYA products all have a sub-one (1) millisecond latency. The result of operating in Layer 2 is high bandwidth and low-latency because packet overhead is reduced.

Just as in important as simultaneous large file uploads, being able to select the appropriate channel width and frequency is also a crucial factor in real-time video streaming. Each camera manufacturer has their chosen data compression technique. Depending on the image resolution, compression format, frame rate, each camera will require appropriate throughput or bandwidth. AIRAYA radios are capable of handling the high throughput requirements of video applications due to Layer 2 operation, low latency and tuning parameters to optimize the links.

The IndyGo project was in need of a solution that was robust as well as could handle the high speed and harsh bus environments. AIRAYA delivered the highest speed in the industry and with the lowest latency, as well as the ability to scale gracefully for the number of the busses that were connected.

The Solution

AIRAYA's Rugged, Predictable, Robust and Secure Outdoor Wireless Solution.

Using AIRAYA's ruggedized and secure WirelessGRID™ Mobile Subscribe Unit (MSU) and WirelessGRID™ Base Stations (BSU), Safety Vision provided IndyGo with a reliable and affordable solution. The ideally suited AIRAYA equipment provided IndyGo with the optimal delivery of IP video, voice, and data services at a lower cost than or other wireless broadband solutions, with less maintenance and the ability to very quickly retrieve data from the system.



Mobile Public Safety City Wide

Customer Facts	Safety Vision, Inc.
Headquarters:	Houston, Texas
President/CEO:	Bruce Smith
Founded:	1993

Safety Vision provides cameras and video recorders for the mobile environment. By focusing solely in this area Safety Vision is able to provide leading expertise in the selection, installation and implementation of mobile surveillance applications.

WirelessGRID™ Mobile Subscriber Units



Fully Integrated Mobile Radio and Antenna Technology

Utilizing OFDM technology in the 4.90-5.85 GHz frequency range, the WirelessGRID™ Mobile Subscriber Unit provides the maximum operating frequency capability with a data rate up to 108 Mbps.

The MSU features a ruggedized enclosure, integrated vehicle mount brackets, a 12 or 24 Volt (8-30VDC Input) vehicle power cable, and weather protected Ethernet cable connector.

Proven in thousands of networks worldwide, WirelessGRID™ radios are ideally suited for low-latency bandwidth-hungry applications that require robust, reliable, and secure connectivity.

The WirelessGRID™ Mobile Subscriber Units that were installed in each vehicle are specifically designed for use in harsh mobile environments with vibration and power spike protection. Another unique AIRAYA feature is a 12 or 24 Volt (8-30VDC Input) vehicle power cable, and a weather protected Ethernet cable connector. Out of the box the AIRAYA MSU is robust, powerful and rugged.

Delivering unparalleled performance with AIRAYA's 5, 10, 20 and 40 MHz wide user-selectable channel plan and AIRAYA's 40 MHz wide channel, high capacity wireless data upload was possible. AIRAYA's delivery of greater throughput is optimized by its use of available spectrum delivered through software selectable channels in the 2.2-2.5 and 4.90-5.85 GHz frequency range. Software selectable channel size and frequency range delivered by AIRAYA's 108 Mbps WirelessGRID™ OFDM technology allows for the AIRAYA's partners to design networks that meet our customer's rigorous requirements. The AIRAYA solution met IndyGo's capacity, speed, scalability, and user needs, while optimizing available frequency.

Network Architecture

Benefits for IndyGo Riders, Drivers and City Officials

The AIRAYA WirelessGRID™ Mobile Subscriber Units and Outdoor Wireless Base Stations were able to get the job done for Safety Vision and its customer IndyGo.

For IndyGo officials, the wireless network has served several purposes: Monitoring both drivers and riders for wrongdoing, scrutinizing drivers' performances for training purposes and curtailing phony insurance claims. As an example, IndyGo will have the means to sift for video evidence of how a bus accident occurred.

"The footage and recordings will be admissible in court," said Dale Meyers, IndyGo's Information Technology Manager.

Each bus is equipped with a computer hard drive that will record and store information. Those hard drives are protected by sturdy metal casings and are not accessible to drivers. The recorded information is downloaded for viewing through the AIRAYA wireless network when a bus returns to the IndyGo garage. Meyers characterized the quality of the video as being "slightly better" than surveillance camera footage one might see at a convenience store. IndyGo plans to pay for the \$1.6 million initiative through a blend of federal grants and local money!

For drivers and riders it means safety.

About Airaya

Predictable, Fast and Affordable Technology.

Founded in 2001, AIRAYA is a world-class designer of proven, fast and affordable outdoor wireless multipoint and backhaul products for high capacity public safety, service provider, and enterprise networks. The company is located in Morgan Hill, California and is privately held. AIRAYA products are available through a network of experienced North American and International distributors and reseller partners. For more information, please visit AIRAYA's web site at: <http://www.airaya.com>, email info@airaya.com, or call toll free 1.866.2AIRAYA (224.7292) - International 1.408.776.2846.

For information on how your business can benefit from the innovative approaches being developed by AIRAYA, please contact us via email info@airaya.com



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