Video Conferencing for IoT

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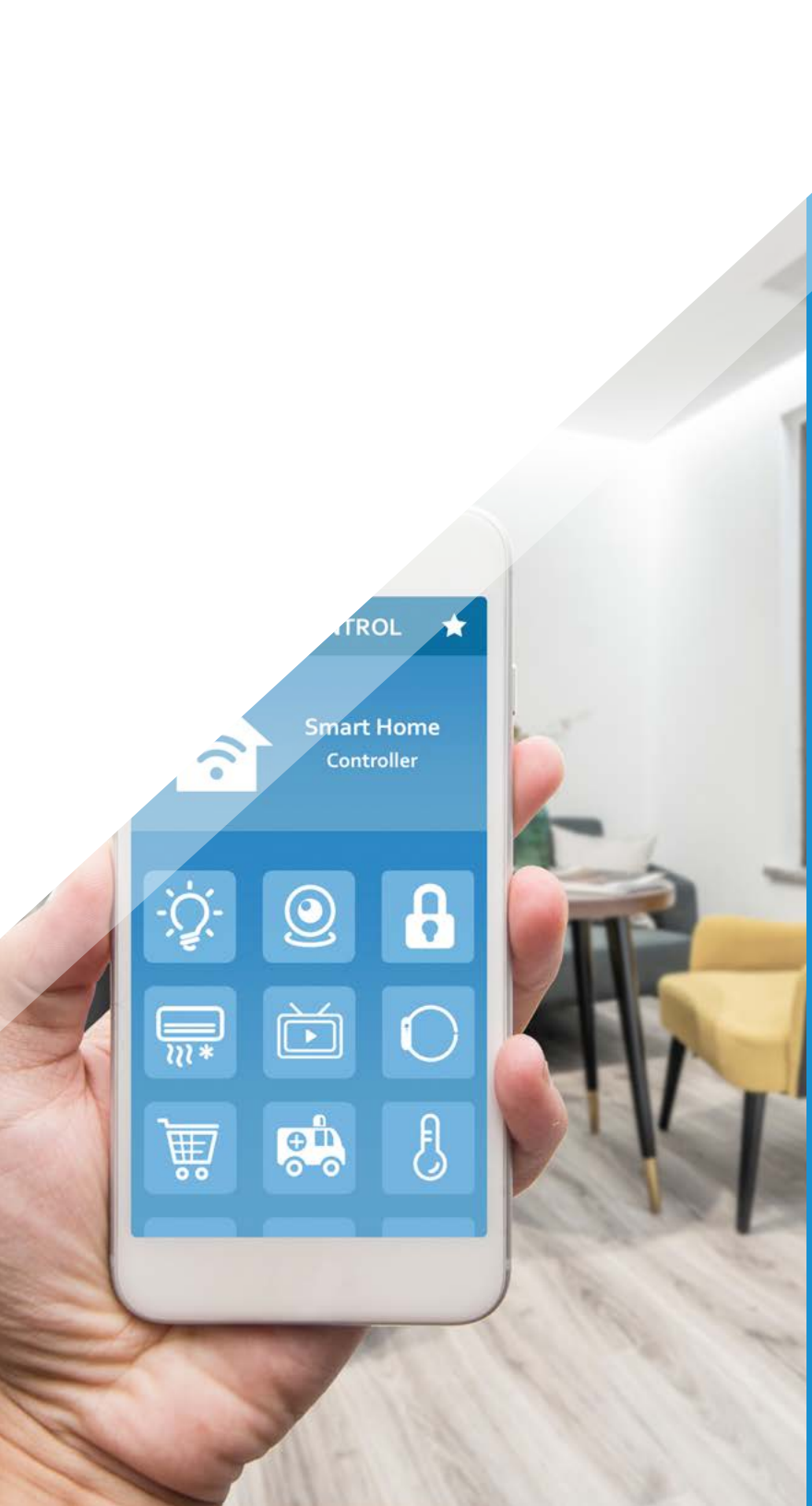

TRENDS AND USE CASES:

Video IoT in 2020 and Beyond

During the 2020 whirlwind of COVID-19, at times it may have felt as if the world was standing still. While the world may have slowed down, it's clear the technology that we all rely on has not.

From corporate executives to government officials and school teachers, millions of people have turned to video communications to stay in touch and carry out their work.

In March, video conferencing applications saw a record-breaking **62 million downloads**. Meanwhile, **Global Market Insights** predicts the video conferencing market will grow at a rate of **19 percent** between 2020 and 2026.

But video technology has applications beyond virtual board meetings and online university classes—especially when paired with other emerging technologies like the Internet of Things, data analytics, and artificial intelligence.

What is IoT?

The Internet of Things (IoT) is a term used to describe objects or “things” connected to networks, also known as “connected devices.” IoT devices can gather and share data with other devices across the internet or intranets. Gartner estimates that by the end of 2020, there will be more than 20 billion connected devices in service, and one of them is likely in your pocket!

Other than your smartphone, household IoT items may include your refrigerator, washing machine, or coffee pot alarm clock. When calibrated and connected to the same network, these devices make-up a “smart-home,” that can provide information and help you go about your daily tasks.

Governments, healthcare providers, manufacturers, and nearly every other industry vertical have found use for IoT technology. This includes connected machines in factories, robots for medical procedures, connected public transit vehicles, and many more scenarios.

The Evolution of Video Technology

Once upon a time, a person had to continuously monitor a live video feed in order to take action on image data. Closed-circuit television systems (CCTV) have been used in this manner for more than half a century and were first deployed in Nazi Germany to monitor incoming Allied missiles. Under this early example of video surveillance, a soldier needed to constantly monitor the video feed. Even then, due to the limitations of the human eye and poor video quality, incoming threats could easily be missed.

Thanks to IoT and data analytics, today's video surveillance has come a long way. An IoT camera has the ability to autonomously identify and classify objects, movements, and patterns. When a camera is connected to analytics software, it can not only capture images but also analyze those images in real-time. This greatly enhances the ability of video technology to provide people with live insights,

alerts, and warnings as they carry out their tasks.

Today, IoT-powered video applications are used across many different public and commercial sectors including retail, security, city planning, transportation, manufacturing, healthcare, and much more. Some of the most common drivers to adopt this technology include bringing greater efficiency to operations, enhancing safety, increasing employee productivity, and capturing richer business insights.

In the rest of this article, we'll explore some of the more interesting use cases for IoT-powered video and what to expect for the future of this technology.

The Use Cases for IoT

Smart Cities

Smart cities around the world are incorporating video IoT and image analytics to improve city planning, reduce traffic congestion, and control crime. According to an IoT analytics report, connected public transit and traffic management are the two most popular use cases for video IoT in smart city planning.

An excellent case example comes from Cape Town, South Africa, which introduced a license plate recognition solution to help manage traffic and crime on one of the city's busiest roadways.

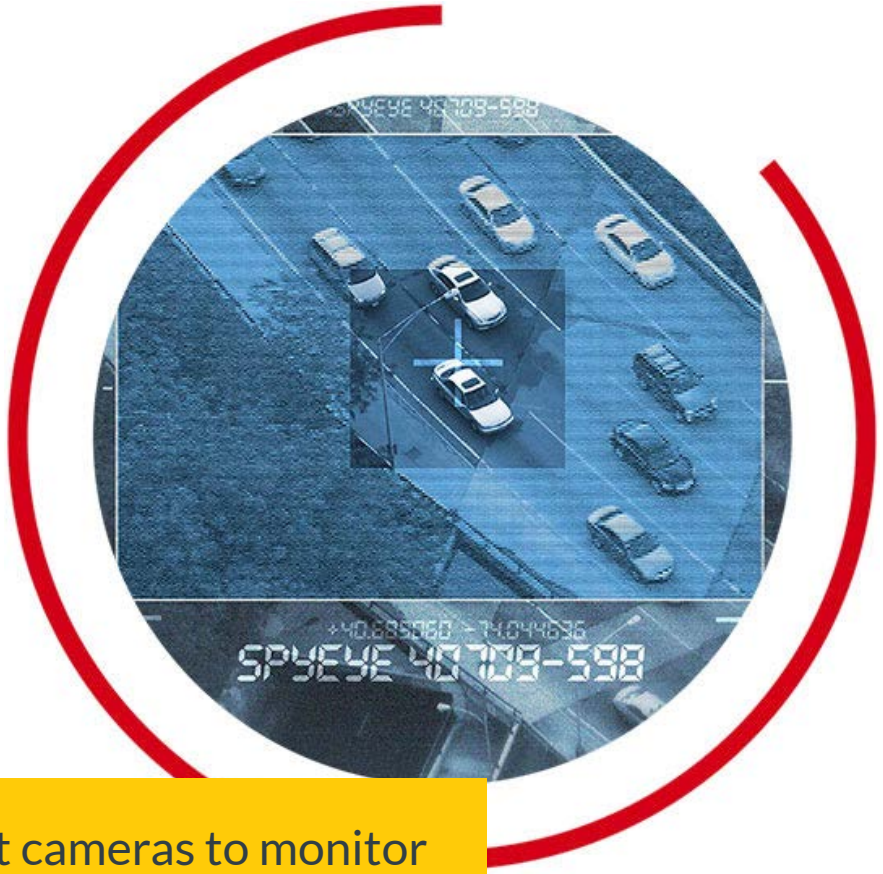

Image from navic.cloud website. Automatic Number Plate Recognition, South Africa

After installing a network of 42 day/night cameras to monitor 300,000 vehicle movements per hour, the city reported a **65% drop in crime** in a popular beachside suburb.

Industry 4.0

Industry 4.0, or the fourth industrial revolution, refers to the fusing of digital technologies with physical and biological technologies to bring about improvements in manufacturing. The most salient product of industry 4.0 is the smart factory which consists of connected machines that provide a constant stream of data to factory managers, engineers, and software programs. According to the Capgemini Research Institute, smart factories could boost the global economy by $1.5 trillion by 2023.

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With video IoT integrated into a connected factory, manufacturers can get a holistic picture of visible and non-visible factory operations to carry out predictive maintenance, monitor inventory, and prevent dangerous situations.

One case example that has received wide-spread recognition comes from the Schneider Electric factory in Le Vaudreuil, France. Schneider Electric implemented their own video-powered augmented reality (AR) solution to enable technicians to view the inside of machines and conduct maintenance without actually having to take the asset apart. By using an AR solution on a tablet, machine operators can superimpose data and virtual objects onto actual machines to determine performance. The solution fueled a 7 percent boost in productivity and a 30 percent jump in energy savings.

Retail

According to McKinsey, IoT applications could help retailers capture up to $1.2 trillion in annual economic value by improving performance in multiple areas. This includes using video surveillance to track the success of in-store promotions, staff allocation, product display, and shop floor layout. More advanced AI-powered video solutions can even alert staff of shoplifters, send notifications when stock is running low, track the number of customers in a store, identify shopping patterns, and collect data to build detailed customer profiles.

IoT applications could help retailers capture up to $1.2 trillion in annual economic value

One interesting example of video AI helping stores costs and reduce theft is the AI Guardsman — an automated security camera designed jointly by Japanese telecom NTT East and tech startup, Earth Eyes. By analyzing shopper body language in real-time against predefined suspicious behaviors, the program is able to alert staff before thieves make off with valuable goods. According to initial reports, stores that installed the cameras were able to reduce shoplifting by 40 percent. This not only reduces lost business income but also enables retail outlets to maintain a leaner security staff without the need for guards to constantly patrol aisles.

Construction

Of the 4,779 worker fatalities reported in 2018, more than one-fifth resulted from construction accidents, making construction the most dangerous occupation in the nation. If deaths from falls and falling objects could be eliminated, 450+ lives could be saved every year.

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Historically, construction has been behind the curve when it comes to adopting new technology. But with video surveillance solutions becoming available at a lower price point, there is a great opportunity for construction companies to leverage technology to improve worker safety.

One of the largest construction companies in the US, Skanska, provides an excellent example of how video technology can be used to save lives. By using a machine learning video program, Skanska collects and analyzes tons of still and live images on an ongoing basis at their construction sites. The machine learning program is trained to identify both positive behaviors and risk factors. It can alert site managers of missing PPE, unsafely placed equipment, or obstructions on walkways. With this extra pair of eyes, construction companies can reduce workplace injuries and deaths.

Healthcare

From chronic disease management to geriatric care and virtual consultations, video IoT has the potential to revolutionize healthcare. With digitally enhanced healthcare solutions, known as telehealth, medical experts can provide care to a larger coverage area while conserving time and resources. Embedded video and connected clinical tools enable physicians to provide remote care to evaluate, diagnose, and even provide treatment to patients.

> Ochsner's CareConnect 360 program performed 3, 300+ virtual consultations during the first year of deployment

One example of video-enhanced telehealth comes from the Ochsner Health System's virtual care program, CareConnect 360. As Ochsner's health practice grew, it needed to scale its ability to serve a greater number of patients. To achieve this, Ochsner adopted the VidyoConnect cloud-based telehealth solution to reach patients right from their home desktops, iPhones, or tablets. With the solution in place, the CareConnect 360 program performed 3,300+ virtual consultations during the first year of deployment, including for rural patients who would have otherwise struggled to make it into a clinic location. Ochsner's telestroke practice experienced especially impressive results, with a 100 percent increase in the number of suspected stroke patients evaluated virtually.

Future Trends and Benefits of Video IoT

Previously, the prohibitive cost of hardware, software, and data storage kept many organizations from pursuing the benefits of video IoT. But this is changing. According to McKinsey data, the entry-level pricing for cloud-computing services has decreased 66 percent over a two year period. Similar price drops in hardware and software are expected to drive an increase in demand for video technology and analytics programs. The most robust demand for these solutions is expected to come from city planning, retail, the automotive sector, and construction settings.

As per an LDV Capital projection, there will be 44 billion cameras in the world by 2022, with embedded IoT-powered cameras playing an increasingly important role across industries.

Companies of all different sizes and business verticals are already using these devices to take a more proactive approach to operations, safety, customer experience, and efficiency. As video solutions become more advanced and the necessary technology infrastructure becomes available at a lower price point, the potential for video IoT to drive superior business outcomes will only continue to rise.

Ready to explore how video communications can benefit your organization?

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