Revolutionary use of HD video surveillance offers chance of ‘normal life’ for loving family. 2020 Vision, the multi award-winning security integrator, has broken new industry ground with the development of a fully-integrated monitoring system for a severely disabled boy.
HD HOME MONITORING SYSTEM
CASE STUDY

Client
The Merrigan Family, Northumberland.

Challenge
The parents of ten-year-old Lewis Merrigan, who care full time for their son in a purpose built home, approached 2020 Vision with an idea to create a fully integrated visual and audio monitoring system that would allow them to keep close watch over their son and observe his state, regardless of where they were located. Whether somewhere in the house or further afield. Parents Jason and Liz devote all their time to looking after Lewis, who can suffer from debilitating seizures and fits, sometimes up to a thousand a day.

For his well - being it is imperative he is monitored around the clock for tell tale signs of these life-threatening symptoms occurring. The 2020 technical team more used to installing hi-spec integrated security and surveillance systems in prisons, hospitals and universities were up to the challenge to develop a system which would recognise the tell tale signs in his breathing patterns and facial expressions, and alert his parents and carers to the changes, as it is essential they are responded to immediately.

“2020 Vision have been brilliant throughout the whole process and its our hope that more people in our situation will find out what they can do, because it has changed our lives.” Jason Merrigan

Solution
The North East systems integrator rose to the challenge to develop what it says is a first for them, and suggests the solution could change lives for those who have to care for severely disabled relatives.

The groundbreaking system utilises thirteen HD (High Definition) quality network video cameras with incorporated audio capability, and bi directional audio communications, to provide observation and care monitoring of the areas in the house used by Lewis. Doubling as a security function with surveillance extended externally to give the family a fully integrated home security solution.

The cameras realise full HD 1080P images and the high spec microphones installed are super sensitive, but at the same time can blank out any unnecessary background noise, the type a casino might use, but they are perfect for allowing Jason and Liz to hear Lewis’s breathing loud and clear, wherever they are in the house. The audio and visual feeds from the cameras, which auto-track each movement and sound from Lewis are fed to a range of fixed monitors, portable screens and a range of speakers located around the house

The two cameras in Lewis’s bedroom and bathroom also carry infrared capabilities, which monitor him for signs of stress in his bed throughout the night. The live video and audio footage is relayed to Jason and Liz Merrigan’s tablet and Smartphone devices, providing them real time monitoring and reassurance on the move. In order to provide after event analysis to improve Lewis’s care, all real-time audio and video feeds are digitally recorded, and stored for subsequent retrieval.

Result
Jason said, “It has already started to change our own lives. We are no longer on edge every minute of the day. Once 2020 had installed the cameras and microphones in Lewis’s room, and the monitoring equipment in ours, we actually had a full night's sleep together for the first time since he was born. We used to take it in turns to sleep at night. One of us would stay up through the night. It is things like that which make the world of difference to carers and to our lives as a family. Lewis is severely disabled, but he is a bright and happy lad. I think he's well aware he's on the TV screens around the rest of the house now – he quite likes that!”

Jason added, “The syncing with our iphones and ipads is brilliant. It enables us to do even the most mundane of jobs in the garden or the garage, or even just sit outside and enjoy the sun, but now we can still watch and hear Lewis at all times. This is going to make such a difference to all our lives. The system was voted winner of ‘Axis Innovative Solution of The Year 2013’.
Michael Lynch reported, “It has taken Jason, Liz and Lewis to open our eyes and realise that the solution we’ve provided with them could really help thousands of other people who find themselves in exactly the same situation.”

Managing director of 2020 Vision, Peter Houlis added,

Without doubt, this is one of the most rewarding projects we’ve worked on here in 21 years of this company.

We have been able to adapt what is essentially security technology to provide minute-by-minute situational awareness to aid someone to make instant and fully informed life changing decisions. We are very proud to have been able to help Jason, Liz and Lewis.

System Overview

The proposed system designed to meet the clients objectives, utilizes HD (High Definition) quality network video and bi directional audio communications to provide observation care monitoring of the areas in the house used by the clients son and a security function.

The eyes and ears

The system consists of 13 number Axis network video cameras, a mix of internal PTZ domes, discreet fixed domes and external PTZ domes, strategically located throughout the property.

All cameras are high resolution complying with 1080p HD TV standards to provide clear sharp images. The fixed cameras are fitted with 3 to 9mm vari-focal length lens to facilitate the optimum focal length to be selected, commensurate with the required angle of view, from (approx) 6’ to 20’ horizontal. All cameras incorporate high sensitivity microphones tuned to detect changes in Lewis’s breathing patterns. The two bedroom cameras feature low power IR lighting.

Sound and vision where needed

Each camera connects to a network based switch located in the video (CCTV) service room. A structured cable network enables viewing of any camera from any fixed PC device in the house. Whilst high quality WiFi supports streaming of live camera images and audio to iPads or equivalent portable PCs enabling the system users to view cameras while moving around the house and grounds. It is also possible to view the images remotely on an iPhone,

The audio facility on the internal cameras provides the ability to listen into a room and hear live sound on the iPads and the fixed PCs with speakers. Both sound and video data streams are digitally recorded 24/7, via an Instek NVR digital recorder, providing up to 14 days archive for later review.

Sleep Soundly

In order to minimize disruption during the night from the iPad or PC screen at the bedside, audio listen in facility is provided at the bedside. The sound from the microphone in Lewis’s bedroom directly connects to a speaker with volume control, by the master bedside. This allows the PC or iPad to go into screen saver mode or to be switched off, while the sound will be constantly available.