

Innovative Video Technology Improves Care for Children with Autism

The use of advanced video technology has enabled Lebanese non-governmental organization, SESOBEL, to better help children with the Autism Spectrum Disorder (ASD). With this new tool at hand, therapists can easily record therapy sessions and track children's progress by coding their behavior. This process helps to improve the treatment plan and enhance research within this field.

The Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by repetitive and characteristic patterns of behavior and difficulties with social communication and interaction. Early behavioral and educational interventions have been successful with many children with ASD. In such cases, the treatment plan is based on a reliable, standardized assessment designed to meet the child's needs.

The new rehabilitation center at SESOBEL is equipped with a state-of-the-art behavior monitoring and logging system, a project initiated by Systeminence in collaboration with Axis Communications and Milestone Systems to aid evaluations and enhance treatment.

Using this video recording system, therapists are able to set up an individualized treatment plan for each child. The project provides the medical and educational team with accurate quantitative data to help in ASD diagnosis, define specific goals, and evaluate treatment outcomes.

Therapy challenges

SESOBEL has adopted a standardized treatment protocol with more than 70 children with ASD. This protocol requires a weekly assessment to evaluate treatment outcomes. The scoring method involves the opinion of at least two people, generally, from the medical or educational teams, who know the child's abilities. Children are observed individually or in small groups.

Before implementing the video recording system, this procedure was time-consuming, semi-quantitative, and was not useful in detecting slight changes in the children's behavior or distinguishing different behavior patterns. During traditional therapy sessions, the SESOBEL team had to have a camera and a video operator in the therapy room, which distracted the children.

The treatment session's outcome was usually documented manually on hard copies and stored in the child's folder, while the recorded videos were difficult to manage and often not saved correctly. This made analyzing the data a daunting challenge.

First of its kind in the Middle East

The new autism center is equipped with the state-of-the-art behavior management system, "Mantis", a Milestone smart client plugin developed by Systeminence to manage and operate behavioral therapy sessions and to organize data.

The project focuses on enhancing the classroom experience of children with ASD by recording their behavior and expressions with Axis cameras installed inside the therapy room or the classroom. With Milestone's XProtect® Smart Client, the operator can manage the cameras from the control room without distracting the child or interrupting the therapy session.

During or after each session, the therapist can log behaviors directly on the video timeline inside the Smart Client, making all the behavioral details easily accessible, searchable, and quantifiable. All the

data concerning the treatment goals and outcomes are stored in one place and accessed remotely. Specialists use the recordings to extract valuable information from the videos and customize each child's experience.

Over time, the therapists can accurately track the children's progress by studying their behavior through recorded videos. A coding protocol is possible, allowing the creation of comparative clinical reports featuring a timeline of the sessions.

A descriptive statistical analysis can also be generated, making the clinical interpretation easier and more accurate. Moreover, the quantification of all this data will allow the medical team to carry out research studies that will enable them to better assess and treat children with ASD.

Customer Quotes:

What are the short term and long term impacts of Mantis on ASD treatment?

"Regarding the importance of this system in our daily clinical practice, we can define short- and long-term impacts. This system will allow us to backup and organize our sessions (data) in a digital format in the short term. In the long term, a quantitative assessment could be performed regularly, allowing to monitor the child's progress. This assessment is based on a behavioral coding protocol, where interactive and comparative clinical report can be generated, helping to objectively evaluate treatment outcomes." "

How did Mantis change the therapy sessions?

"The time required to evaluate the sessions has dramatically decreased as we no longer need people from the medical-educational team to be physically present during the sessions. We will be able to review, discuss, and adjust the goals and treatment plans for the different cases regularly during the team meetings. The children are no longer distracted by the camera operator, which allows them to be more focused and responsive to the therapist's instructions. These effects will enhance the quality of the treatment."

"Digitization has made the session management and data tracking an easy and less time-consuming task. It provides us with an intuitive interface to accurately and quantitatively code behaviors, study, filter, and generate data reports. This process will allow us to detect slight changes and to better evaluate our treatment outcome in a way we were not able to achieve before. Future research studies could be conducted as well, helping to develop a rational approach in terms of evaluation, diagnosis and treatment in ASD children."

Abir Massaad PT, PhD, Head of Research and Development department at SESOBEL and an Assistant Professor at the Faculty of Medicine at Saint-Joseph University, Beirut.

Partner quote:

What are the different applications of Mantis?

"The potential uses of Mantis are numerous. We expect its application to a variety of verticals to be very promising. These verticals include Police interrogations, animal Behavior research, human resources interview, medical Residency Observation, and many others."

Maroun Cherfan, Business Development Manager, Systeminence.

About SESOBEL

SESOBEL is a Lebanese non-governmental organization founded in 1976 to cater to the needs of children with motor or intellectual disabilities and children with autism. In 2018-19 more than 1400 children and youth of different nationalities, communities, faiths, and cultures were provided with medical services and educational, re-educational, social, human, and spiritual assistance. SESOBEL is taking all possible steps to implement a coherent and monitored service, to assist children and their families as partners in facing life's challenges. It is also a cornerstone for the team at SESOBEL to work to influence society to recognize the value, dignity, and respect for children with disabilities. In 2020, SESOBEL completed a new spacious treatment and rehabilitation center with innovative video technology, unique of its kind in school and rehabilitation settings in the Middle East. Please check their website for more information, www.sesobel.org

About Systeminence

Systeminence is a software development company and video surveillance consultancy. As customization experts and Milestone XProtect technology partners, Systeminence works with Milestone clients to provide tailored, cost-effective, and reliable video solutions that allow their business processes to be more intuitive, connected and integrated. Systeminence services include custom development, consultancy, and professional services. For more information about Systeminence, please visit our website www.systeminence.com.

About Milestone

Milestone Systems is a leading provider of open platform video management software, a technology that helps the world see how to ensure safety, protect assets, and increase business efficiency. Milestone enables an open platform community that drives collaboration and innovation to develop and use network video technology, with reliable and scalable solutions proven in more than 500,000 installations worldwide. Founded in 1998, Milestone is a stand-alone company in the Canon Group. For more information, visit: www.milestonesys.com.

About Axis

Axis enables a smarter and safer world by creating network solutions that provide insights for improving security and new ways of doing business. As the industry leader in network video, Axis offers products and services for video surveillance and analytics, access control, and audio systems. Axis has more than 3,800 dedicated employees in over 50 countries and collaborates with partners worldwide to deliver customer solutions. Founded in 1984, Axis is a Sweden-based company listed on the NASDAQ Stockholm under the ticker AXIS. For more information about Axis, please visit our website www.axis.com.

Organization

SESOBEL

Location

Lebanon

Industry Segment

Social and clinical innovation

Milestone Partner(s)

Axis Communications

Systeminence

Solution

XProtect Expert