Employing Intelligence Systems in the Fight Against COVID-19

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When facing contagious diseases on the scale of COVID-19, national authorities rely on technological solutions to assess Infection rates, locate hot spots, track super-spreaders, and enforce quarantine measures. The rapid and efficient location of infected individuals is imperative, particularly at the breakout phase. That is when authorities can isolate contagious individuals and break chains of infection. It is also critical to obtain information on these individuals' movements before their diagnosis, conduct epidemiological investigations, and contain an outbreak. This capability is also essential once the country returns to routine following the outbreak, maintaining further contagion under control.

The ability to rapidly assess situations enables authorities to formulate an integrated plan of action and immediately implement it locally and nationally. Such plans are based on modeling and prediction, assisting decision-makers in taking the necessary steps. Since the first COVID-19 outbreak, models have been instrumental in predicting outbreaks, helping in living with the virus, recovering communities, and preparing for future waves.

The following review features some of the latest technology developed by Israel's leading defense industries, many of which are derived from military and intelligence assessment and decision-support systems. National authorities in Israel and abroad now employ these tools in dealing with the COVID- 19 pandemic.

Rayzone - The Holistic Emergency Location Platform (HELP) developed by Rayzone fulfills the need to monitor and contain infection rates by establishing a two-way communications platform that informs the public of potential risks, directives, and announcements. At the same time, the same application provides essential information to the authorities. Rayzone provides HELP as a white label solution, providing a complete, customized platform to contain and irradicate a pandemic.

The application essentially provides a channel that keeps the transfer of both communication and data fluid. Citizens can use the platform to follow public announcement health directives, remotely receive and deliver personal health information, and follow real-time mapping of the spread based on integration with big-data. Meanwhile, health authorities can monitor citizens' movements, deliver directives to individuals or the masses, remotely advise citizens, follow-up on medical tests, perform checks, and utilize data from the application with big data integration to continuously update spread patterns.

BLER Systems – has developed the COVID RADAR to locate infected people in crowded areas. The system uses GPS technology and data mining based only on public information. The system maps crowded areas that may consist of the infected population identifies known coronavirus carriers, locate known-infected people outside quarantine, and tracks unauthorized crowding attendants.

Verint – Extending the location services to a national scale, Verint offers the Wave Guard Tracer, an information service that monitors the entire population in real-time for epidemic spread. The system can be implemented quickly and covertly, as it does not require an application to be installed on subscriber's phones. Wave Guard's solution is fully compliant with data protection and privacy regulations. Wave Guard successfully provides the geo-location of dozens of millions of subscribers around the world.
With the information gathered by the system, authorities can reconstruct the location of infected individuals retroactively, detect their infection paths, and create a list of further potentially infected individuals. The system can also monitor quarantine individuals in real-time to prevent further infection. Analytic tools help authorities understand the epidemic spread status, use heat maps, track patient zero, and use other insights.

NSO - a developer of intelligence solutions for government agencies, has teamed with epidemiologists and public health experts to introduce 'Fleming,' an epidemiological analytics system based on its technology. The system anonymizes all data transferred to operators to comply with privacy and security. Fleming features an advanced mapping tool that identifies the spread of the virus in real-time. With reports delivered by Fleming,

authorities can deploy medical resources, personnel, and critical supplies more effectively and implement public health protocols that help contain the spread. Maintaining an outbreak under control is critical for developing strategies to reopen economies in regions where the pandemic no longer poses a serious health threat.

Toka - Unlocking the vast opportunities created by the IoT landscape's growth, Toka helps trusted government, law enforcement, and security agencies defend against terror and crime. Toka now harnesses these technologies to combat the world-scale pandemic. Offering an end-to-end platform for Visual Intelligence acquisition Toka VISINT allows government agencies to access security systems to gather real-time and historical footage that yields actionable intelligence. Toka VISINT supports various use cases, including targeted intelligence, forensic investigations, covert operations, and public emergencies. Such VISINT capabilities become useful in epidemiologic investigations. Visual elements that would otherwise be out-of-reach can be used with the utmost efficiency while maintaining privacy and information security.

Rafael - has also implemented a subset of the Wisdom Stone intelligence gathering and decision support system to provide such services to the authorities embattled with the COVID19 pandemic. Wisdom Stone is a cloud-based Big Data SaaS platform that provides an end-to-end solution for governmental authorities and civilians to predict and contain any pandemic, managing life during the pandemic, and the 'Day After' strategy.

Using Artificial Intelligence (AI) and Machine Learning technologies, the system can integrate any data source and provides decision-makers with situational awareness dashboards, prediction analysis, and conclusions, enabling appropriate and efficient actions. Typical decisions supported by Wisdom Stone are policy recommendations and resource prioritization, such as lab testing and medical care. Different options are evaluated before decisions are made through prediction algorithms analyzing populations at risk, disease outbreaks, and economic factors. Different analytical models can be used and adjusted to each customer.

The solution incorporates an application forming a secure connection between civilians and authorities while maintaining the highest privacy standards and building trust, vital to combatting a national crisis. Through such an efficient and consistent process Wisdom Stone allows the country to 'return to normal' while controlling the risk of future waves of infection.

Magen - To avoid the legal constraints and privacy implications of intelligence-gathering systems, health authorities offer commercial tools providing users a downloadable app and a level of service users with which they feel comfortable. Magen, a pandemic outbreak prevention solution, was developed to provide decision-makers in the government sector an actionable insight for mitigation and prevention of COVID19 spread, using mapping and cross-analysis capabilities, quarantine monitoring, and enforcement, planning, and mitigation strategies. The system is employing lawful monitoring techniques to report possible contacts with confirmed infected individuals. The system uses WiFi, Bluetooth, and AI to enable passive monitoring of individuals without privacy violations. At the back end, Magen integrates with databases for cross-analysis of information, using geographical and thematic mapping, providing visual mapping. Data analysis also detects high-risk situations by predicting risky activities of specific individuals or zones of potentially high-risk.

NG SOFT – Expediting information to the public is imperative when decisions are made. That's when SMART comes to place**,** delivering emergency alerts to millions of people within seconds. SMART's primary purpose is to inform people of a pending life-threatening danger using their smartphones or any other communication channel to provide information and alert regarding evacuation or other lifesaving activities.

Operated at a national, state, or city to citizen direct communication tool, SMART offers a direct channel dedicated to updating the public with crucial information of their concern, hence dramatically improving people's sense of security. SMART communicates messages to citizens, tourists, and foreigners alike. The system is operational with various customers worldwide, serving multi-millions populations for over ten years and saving lives.

SYNRGAI – As a group specialized in crisis management, SYNRGAI supports decision-makers in the corporate, federal, and municipal arenas based on the synergy between people, methods of action, and technological innovation. SYNRGAI employs a unique model for gathering and processing information based on AI and machine learning employment. The model considers community sentiment and trust in predicting future crises. Based on real-time assessment and fusion of multiple data sources, including SYNRGAI's unique community sentiment analysis, the model provides a comprehensive situational report utilized to build protocols, procedures, and effective response regulations.

TSG – The field-proven Disaster Management System (DMS) developed by TSG is a multi-disciplinary C4I solution designed to provide a Coherent Common Operational Picture (COP) to the authorities by integrating the information with national and municipal offices, first responders agencies, health authorities, and others. Providing clear and updated information, DMS improves response time and allows decision-makers to make better decisions based on real-time information. The system is operationally used by the IDF's Home Front Command and by most of the municipalities in Israel.

Customized according to each organization's needs, DMS is interfaced with other information systems, command & control systems, databases, and sensors. It has the capability and tools to support processes in managing the emergencies - before and during their occurrence, until their conclusion. TSG also offers the Digital City Program (DCP), enabling municipalities to monitor citizens' engagement and interaction within the city. DCP is a cloud-based portal, content management system, and mobile apps enabling municipalities to engage the public in crisis and routine urban life.

Leveraging Israel's defense industries' extraordinary capabilities, the International Defense Cooperation Directorate in Israel's Ministry of Defense (SIBAT) provides the gateway for foreign governments and enterprises seeking solutions to address the most pressing challenges posed by the pandemic. SIBAT remains updated about technologies and solutions developed by Israeli defense industries, large companies, and small or

medium enterprises (SME). These new capabilities are adapted to meet the evolving needs and operational requirements expressed by SIBAT's partners in Israel and abroad.

For more information, please contact SIBAT to download our latest report:

Israel's Solutions for Pandemic Challenges