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**Mobile Monitoring
System for Pre- and
Post-Disaster Risk
and Hazard
Identification
(Earthquake,
Landslide, Retaining
Wall, Pile
Foundation Shifts,
Bridge and Tunnel
Movements)**

Low initial investment cost and the ability to use the same product in other structures after operation

Simultaneous detailed monitoring of dozens of structures in the disaster area. Immediate on-site intervention



Enabling the creation of a comprehensive risk database for structures

Minimising negligence and application errors Monitoring the process from a single centre



Mobile Monitoring System for Pre- and Post-Disaster Risk and Hazard Identification



Mobile Disaster Monitoring Station

Mobile Disaster PRE- and POST-MONITORING SYSTEMS can perform multi-angle (inclination) monitoring of structures. They are designed for easy intervention and immediate solutions in the field. In addition, our mobile laboratories provide users with an environment where they can safely store the devices used in the laboratory and easily monitor them remotely.



Mobile MOBILE MONITORING SYSTEM FOR IDENTIFYING RISKS AND HAZARDS BEFORE AND AFTER DISASTERS





► The system will be activated within one hour before and after a disaster and can be monitored for as long as required, without any time restrictions. Continuous monitoring was carried out until the completion of debris removal in two provinces following the Düzce earthquake and the TÜRKİYE Kahramanmaraş earthquake (Düzce, Gaziantep and Hatay).

Mobile Construction Site Monitoring Station

- ▶ Panelvan-Van Mobile Laboratories, equipped with the necessary equipment, have the capability to provide fast and transparent services on site in applications where observations need to be made at different points. After a disaster, at least 100 structures in the vicinity of the debris can be monitored simultaneously at the rescue site.



Software Support and Documentation Activities

- Computers, software, hardware and infrastructure enable instant information transfer and efficient working. The work carried out provides a safer working environment, minimising loss of life among staff and building occupants. Measurements/results are collected without human negligence, intent or error. It enables the data collected to be viewed and monitored live in a single centre. It allows the progress of the project to be monitored in real time. It helps to take action based on the outcome after aftershocks by recording the data of the structures being monitored. On the side, the monitoring of risky structures during rescue operations under the rubble in TÜRKİYE-Gaziantep can be seen



Data Tracking



Fig 1 - Graph indicates stable data from a crane base

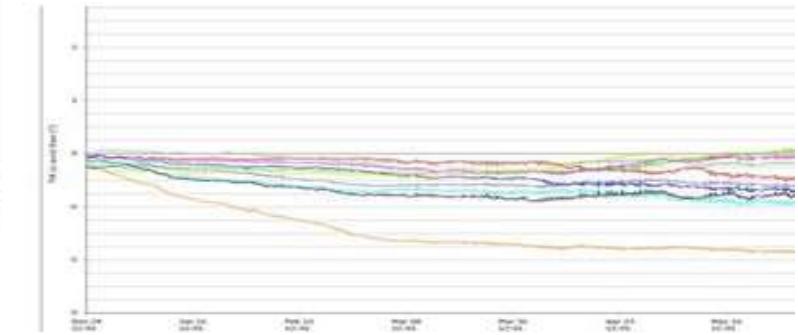
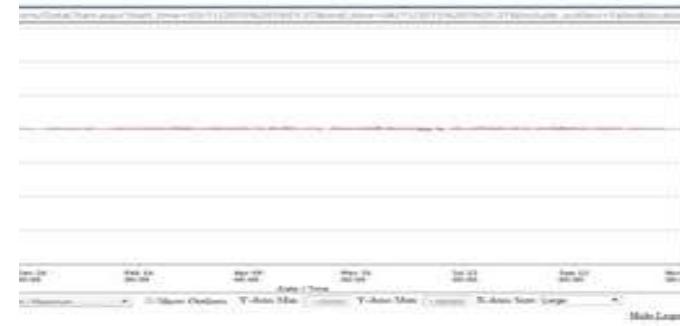


Fig 2 - Graph indicates stable data with gentle movement on a retaining wall

AREAS OF APPLICATION FOR THE SYSTEM

To monitor the deflection of bridge piers and decks, inclinometers and chains of inclinometers are used to create a longitudinal settlement profile along the structure. This is to measure potential damage to the structure throughout its design life and after events such as earthquakes. Crack sensors monitor structural defects and cracks, while strain gauges monitor stress in beam elements, enabling real-time tracking of the structure's risk mobility.



REPORTS

The Reports page enables the user to quickly generate graphs, tables, and downloadable CSV format files for one or more sensors. Monitoring the perimeter of the debris field in TÜRKİYE- Gaziantep



Communication and Sensor Types



Optical Displacement Sensor + Three-Axis Tilt + Internal Temperature Sensor



Three-axis tilt sensor + built-in temperature sensor



Crack Sensor Node, VW Node, MVV Node



RESULT:

ODS: 0.1mm
Incl.: 0.0001°

0.0001° /
0.00175 mm/m

Essentially infinite (depending on the interface sensor type)

REPETABILITY:

ODS: +/- 0.15mm
Incl.: +/- 0.0025°

+/- 0.0025° /
+/- 0.00436 mm/m

CRAKE Sensor: <0,01 mm

RANGE:

ODS: 0'dan 50-150m
Incl: +/- 90°

+/- 90°

CRAKE Sensor: 0 ila 25-200 mm

MOBILE DISASTER (EARTHQUAKE-LANDSLIDE-RETAINING WALL, PILE FOUNDATION SHIFTS-BRIDGE AND TUNNEL MOVEMENTS) RISK AND HAZARD DETECTION MOBILE MONITORING SYSTEM (THE CONTENTS OF EACH SET ARE SPECIFIED BELOW)

ITS: WIRELESS OPTICAL 3-AXIS TILT SENSOR. The FlatMesh Optical Measurement Sensor is a sensor that uses high-precision displacement measurements and transmits them to a wireless gateway communication network. 24 UNITS: WIRELESS 3-AXIS TILT SENSOR. The FlatMesh Measurement Sensor is a sensor that uses high-precision displacement measurements and sends them to a gateway wireless communication network. 4 UNITS: WIRELESS CRACK MONITORING SENSOR. The Crack Gauge Sensor Circuit connects to linear displacement sensors and reports high-precision measurements to a Gateway via the FlatMesh wireless communication network. 2 UNITS: NANO TIP WIRELESS SPHERE 3-AXIS TILT SENSOR. The FlatMesh Optical Measurement Sensor is a wireless sensor used for high-precision displacement measurements in hard-to-reach locations in the field. 2 UNITS: GATEWAY WIRELESS STATION SYSTEM USE, CRACKING ANALYSIS PROGRAM USE LICENCE 30 UNITS: WIRELESS SENSOR ANTENNA UNIVERSAL MOUNTING KITSUNIT PROFESSIONAL FIELD USE SUPPORT SET

Accessories. Heavy-duty, wheeled, special Pelican transport set suitable for harsh field conditions. 2 tablets for harsh field conditions. 1 x 2.2 kW silent Honda generator. 1 x Bosch cordless breaker and drill set. 1 x Bosch cordless cutting tool. 2 x cordless special projectors. 1 x portable ladder. 1 x special first aid kit. 1 Prof.120 special tool kit. 1 sensor installation kit bag. 2 sets (helmet-safety goggles-earmuffs-gloves) 1 special fuel tank. 1 set of safety warning accessories.



Upon arrival at the site, the mobile system is put into operation within a short period of 10-15 minutes, and monitoring begins. ALL HAZARDOUS CONDITIONS PROVIDE REAL-TIME DATA UNTIL THE CHECK IS COMPLETED.



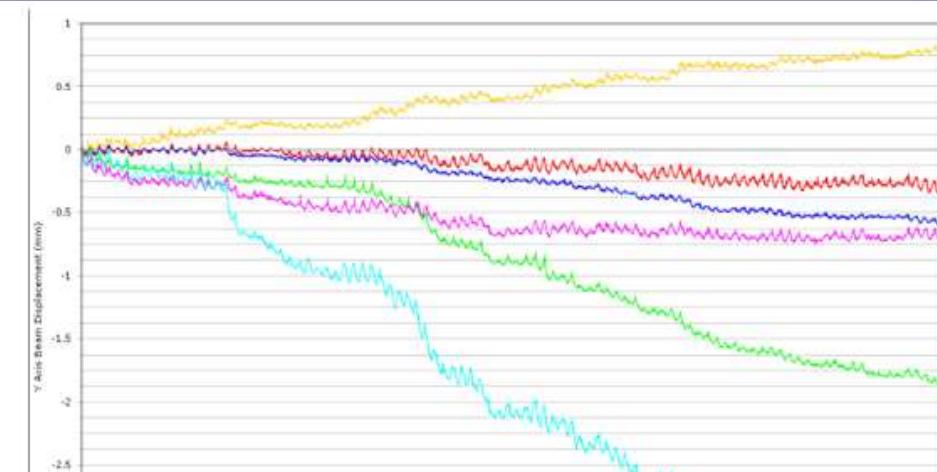


TECNİCAL SPECT.

- ▶ Rapor Şablonları, çoklu zaman periyotları boyunca aynı gruptaki sensor yerleri ve tiperi için çabuk ve hızlı csv dosyalarını oluşturmaya izin verir.
- ▶ 0.1mm optik sensör çözünürlüğü ve $\pm 0.15\text{mm}$ tekrarlanabilirlik
- ▶ 0.0001° ($0.0018\text{mm} / \text{m}$) üç eksenli eğim sensörü duyarlılığı ve $\pm 0.0005^\circ$ ($\pm 0.009 \text{ mm} / \text{m}$) tekrarlanabilirlik
- ▶ Entegre uzun ömürlü batarya
- ▶ 10 yıl pil ömrü (Ağ yapısında çalışırken)

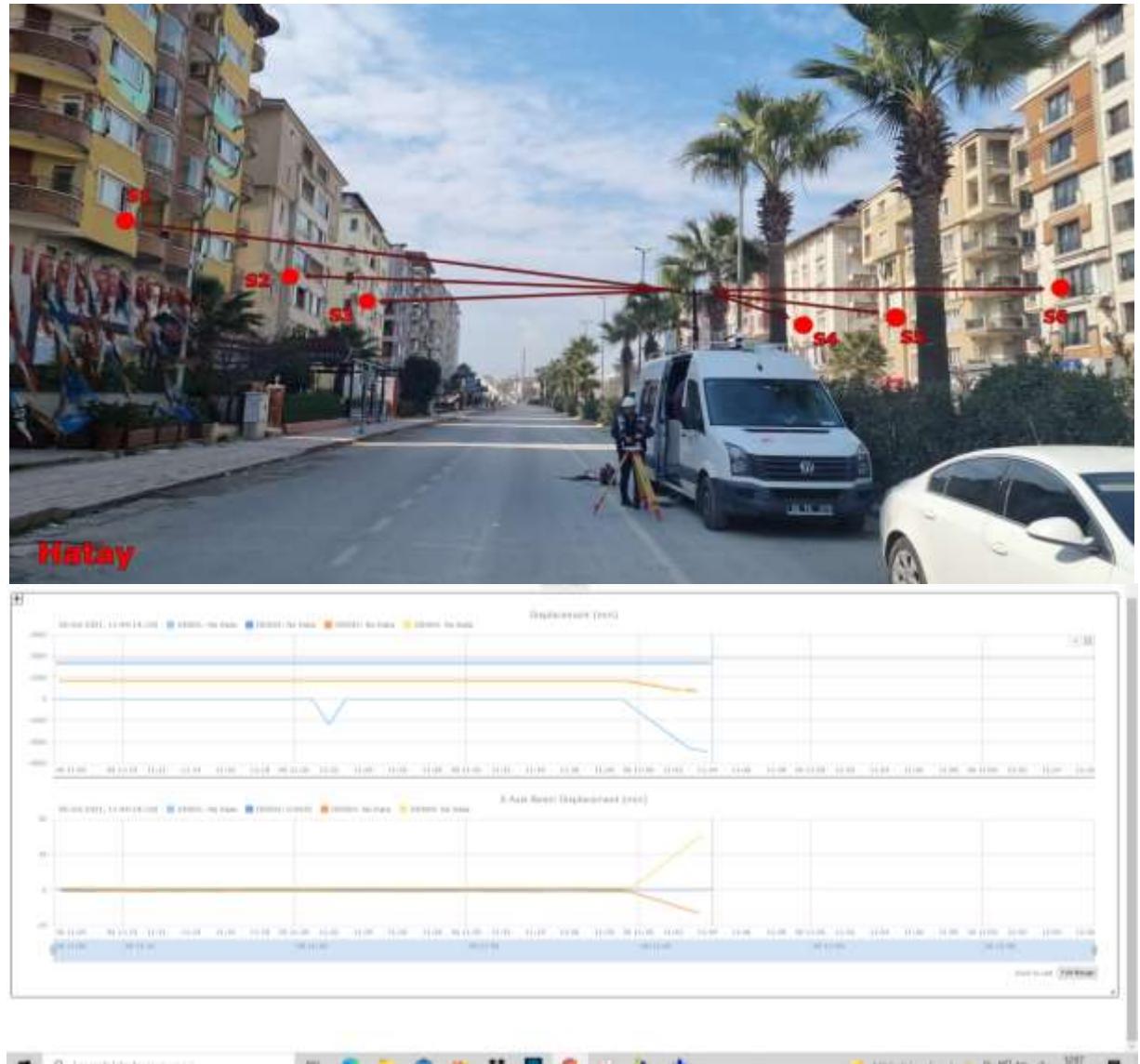


Y eksenin yönünde Hareket –Zaman Grafiği



Web Monitor

- Web Monitor runs on a high-performance Microsoft Windows-based server. Several Windows services run in the background to perform tasks such as:Accepting connections from GPRS Gateways in the field.Maintaining connections to USB Network Adapters that can connect directly to a computer acting as a server.Transmitting messages between services.To process incoming data and perform any necessary structured data conversion or calculations.To send necessary alert messages via SMS or email. THE MONITORING OF 5 STRUCTURES IN REAL TIME IS DISPLAYED ON THE SIDE.



SYSTEM; IT IS ONE OF THE EXAMPLES THAT CAN BE USED FOR PREVENTION AND WARNING BEFORE EVENTS SUCH AS THE COLLAPSE OF AREL UNIVERSITY IN ISTANBUL, AS SEEN IN THE IMAGE BELOW.

- 1999/5 / EC sayılı R & TTE Direktifi ve
- 2011/65 / AB sayılı RoHS Direktifinin PA05/04146 London underground
- 2014/53 / AB KIRMIZI Direktif
- 2011/65 / AB RoHS Direkti





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