

Istanbul Technical University believed to Maysistem's capability to reduce Scanivalf project expense



Customer



Istanbul Technical University is a State University that defines the professions of Engineering and Architecture in Türkiye that provides a modern education environment to the students while possessing its conventional structure. Having 240 years prominent history, Istanbul Technical University has been distinguished in Türkiye with its engineering and architecture education. It had undertaken the leadership in the Ottoman Empire reformation movements and had influence on the reconstruction, modernization and administration of Turkish Nation during the Republican Period of Türkiye. ITU graduate engineers and architects had devoted tremendous effort on building the infrastructure in the cities and villages of Türkiye, such as, bridges, factories, buildings, power plants, telecommunication networks.

It has 5 campuses located in Istanbul, 13 colleges and 6 research institutes. It gives comprehensive education in 39 undergraduate degree programs and it has International Accreditation in all of the undergraduate degree programs (ABET, EUA, NAAB, IMO). It also has 145 Master's and Ph.D. degree programs, more than 30.000 full time students with 1 professor per 12 students and gives education in full English language. It has advanced Information Systems and Communication Technology facilities.

ITU has multiple Wind Tunnels and they use measurement instruments to determine Wind Speed at the special points of the model but they wanted to have multiple measurements in one session. They decided to have a multiple input-single output measurement system. It was called Scanivalf.

Maysistem, with its measurement experience, became the most eligible candidate.

Project



Scanivalf system had to be portable. It had to have 16 separate inputs and 1 connected output. It had to have just one route from any input to the output. For that, the mechanical part had to be equipped with airproof nosel. Each input had to have electronically controlled switch. To create equivalent measurements, each route from any inputs to output had to be at the same length and smoothness.



Scanivalf is built for the
Wind Tunnel in İTÜ



Solution



Creating smooth paths from inputs to output with the same length was a challenge. This forced us to create a circular design. The mechanical part was produced from hardened Aluminum case and tubes. All were assembled with 24V controlled airproof solenoid valves at each input nosel. At all inputs and output, we added special made elastically long tubes.

The control of the solenoid valves was another challenge because the system had to be independent but the measurement time length has to be variable and precise. For that, we used Schneider PLC. The panel was equipped with a selector to choose the interval of measurement precisely. The software was a sub series of Libra software group, created for measurement systems only.

After the first test, we made a calibration for each channel and the measurement results were all within 1×10^{-3} uncertainty. This was a successful result. ITU has commissioned the system after the calibration.

Conclusion



The machine and the panel were commissioned at 2005 and it was used since at the Wind Tunnel to take sequential measurement from any architectural models.

Result

