

# Internet of Things (IoT)




**Internet of Things (IoT) refers to the developed network of physical objects that contain an IP address for internet connectivity and the connectivity that occurs between these devices. The object or machine component can have sensors installed to monitor operating conditions, performance levels and physical states and data.**

## **In what ways the Internet of Things can benefit your construction site?**

The Internet of Things is impacting construction industry. IoT influences the whole project life, from design to completion. It is used for the management of workforce, tools and machinery. Through improvement of project productivity and health and safety to the maintenance of the completed buildings. IoT is used from the same beginning, starting with project design. For instance, it might be very helpful to validate the developed plans and specification on site by producing a 3D model in real time. It allows checking if toilets or sockets are designed in the adequate places, how narrow is the corridor

etc. Moreover, the progress of the construction project can be easily monitored thanks to photos and videos taken on mobile phones synchronised with all devices. On the project completion, IoT helps with the building maintenance providing data on air conditioning, central heating, etc. IoT works in conjunction with BIM solutions.

Digital software solutions contribute to reducing the costs of projects realisation. Estimations, pricing, productivity, maintenance, etc. all can be executed using IoT and BIM. The construction is also more sustainable thanks to the IoT which helps reduce the wastage or control the energy efficiency.



Moreover, the IoT is common already in the management of construction tools and machinery. Machine to machine (M2M) monitoring is saving money and generating better project margins.

For most tools, there are now free mobile application available which allow to record the usage data, run diagnostic tests, signal damage or theft. More and more computing and robotics are used on building sites like for instance the smart helmet, infrared cameras, geofencing, etc. Heavy construction equipment is outfitted with sensors, which monitor for the major indicators of potential maintenance issues like temperature fluctuations, excessive vibrations, etc. so workers can intervene early to prevent the damage. The internet software can track and monitor critical assets, tools equipment, vehicles and inventories across multiple building sites, using the GPS positioning, barcode scanning and online workflows. IoT is used to improve not only the performance and project execution but also the health and safety of construction workers. IoT improves the construction site security with the everyday use of drones or tools and machinery tags what effectively minimise the theft.

Another example of IoT are the prefabricated building components. Prefabs reduce the time to project completion and create less waste but in the case of large buildings such projects are very complex to coordinate. The IoT is minimising the problem by allowing tracking of prefab parts through RFID sensors. Data are recorded in BIM and allow for real-time monitoring of project progress.

The IoT is impacting the building site operations. Technologies on construction sites minimise the project execution costs and lead to increase in the overall performance. How do you use the IoT in your construction projects? Share your experiences with us for a chance of publicity and advertisement.