Building Automation

- Construction Automation
- 3D Printing
- Robotics
- Automated Systems

Construction automation

Research

Several prototypes have been implemented for investigating the potential for automation in the construction of structural frames of buildings. Automated lifting, assembly and sensing are active research areas.

Equipment

Custom designed and fabricated coordinated lifting machines are in the lab. This includes systems with, motorized hoists, hydraulic jacks, and electric motors.

Motorized hoist machine

Hydraulic machine

3D Printing

Polymer 3D printer

The polymer 3D printer facilitate printing ABS and PLA polymers, on 3 axes. A prototype of a system for integrating concrete 3D printer with robotics is currently under testing.

Polymer 3D Printer

Application

3D printing is a futuristic technology and the polymer printer enables protype design and printing unique components. 3D printing is expected to be key in automated construction and these facilities enable research in this domain.

Robotics

Robotic Arm

The lab is equipped with two ARISTO 6XT MTAB Make, 6 Axis Articulated Robot arms. The robot features 6 degrees of freedom with payload capacity of 2.5kg and 0.1 degree resolution.

Robotic arm

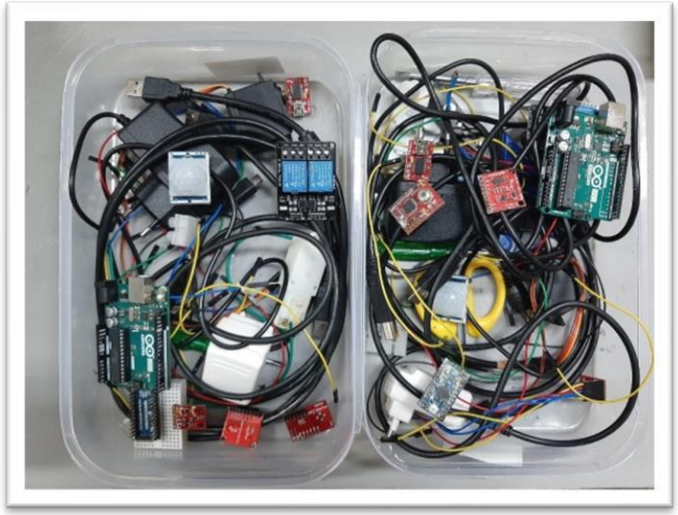
Application

Robotic arms are capable to automate hand-held tasks such as welding, placing etc. The facility offer research opportunities in advanced robotic construction activities.

Automated systems

Automation kits

The lab promote automation application with automation kits equipped with actuators, sensors and microcontrollers.



Automation Kits

Application

Combination and coding of these components can provide hands own knowledge into design of automated systems.