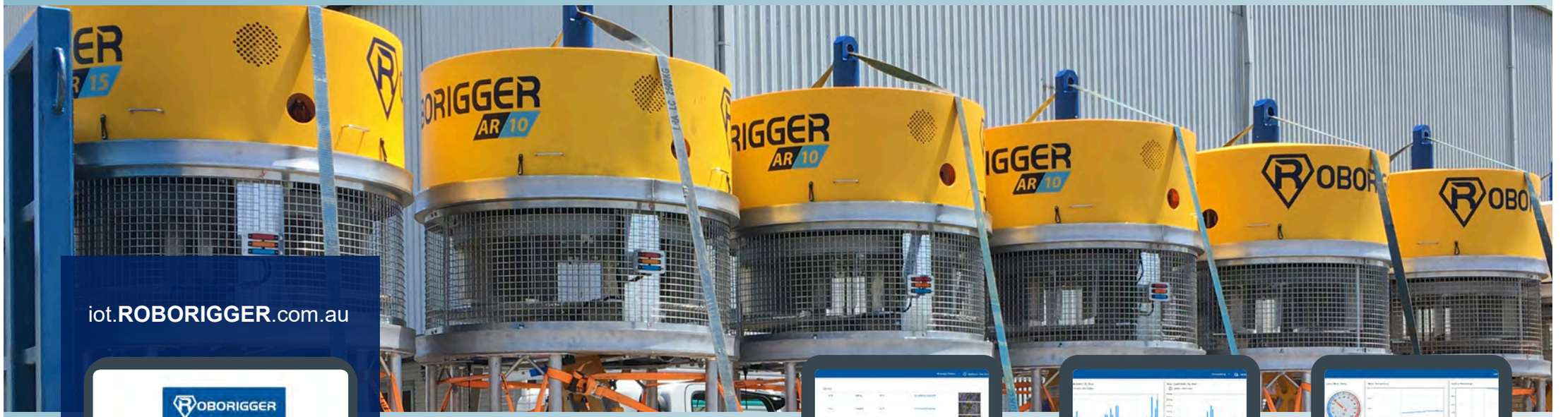
IOT APPLICATION AND REMOTE MONITORING SERVICE



iot.**ROBORIGGER**.com.au

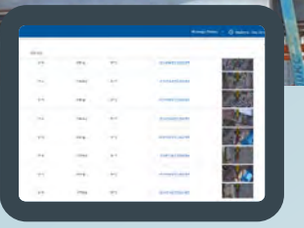
Roborigger lifting data is recorded in real-time and available online through our web-based IoT customer platform.

All data is downloadable in database formats for more detailed analysis.

Identify safety improvements for a single device or across the entire fleet of your operations.

Roborigger IoT connectivity allows your device to continuously gather your lifting data and usage patterns.

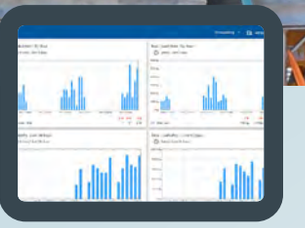
Take advantage of email alerts feature to notify your team of incorrect user operations or unsafe practices.



OPERATIONS MONITORING

Shows the complete information on all lifting operations including:

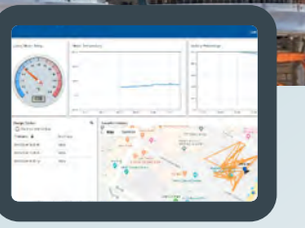
- **Still images** of lifts.
- **Location, time,** and **date** of each lifting operation, including the **weight** of the load
- Blackbox recording of **non-conforming events** e.g. shock, overload, topple, etc.
- **Message alerts** when a unit is overloaded, lift above allowable capacity or shock loads.



PRODUCTIVITY STATISTICS

Highlights **lifting productivity** patterns such the total number of lifts, lifts per hour and the total load lifted over a period of time.

Customised visualisation requirements can be produced from available data.



EQUIPMENT DIAGNOSTIC

The device monitoring page aimed at giving information on a specific Roborigger unit

Relevant equipment diagnostic information such as **battery, motor temperature, charge cycles.**

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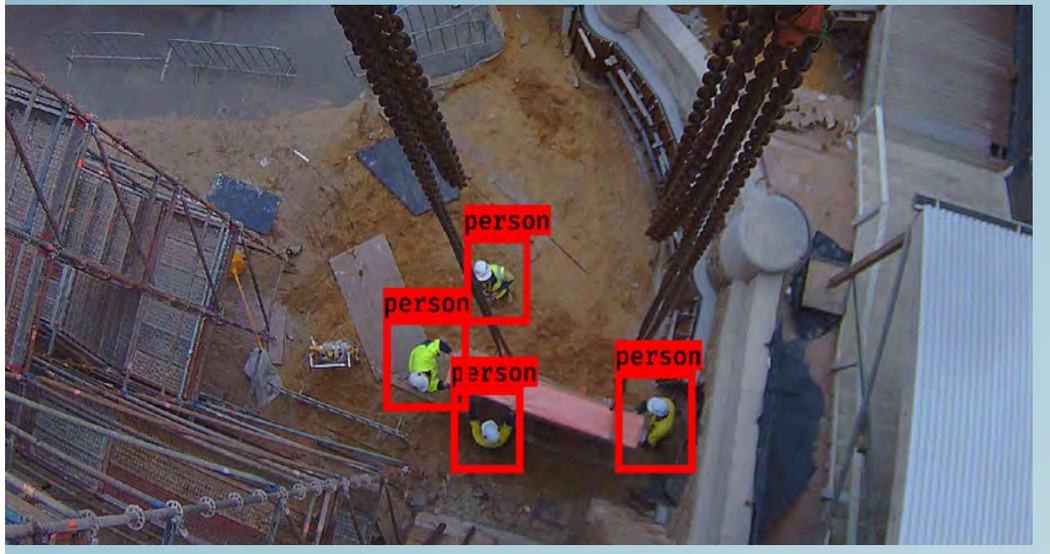
AI image recognition capability

Change the workforce behaviour by identifying personnel below loads.



Roborigger is developing a personnel detection system based on an artificial intelligence (AI) model to **detect personnel within the fall zone** of a suspended load. The protoype system is already working.

This will allow the user to implement incentives based on reducing the number of personnel incursions.

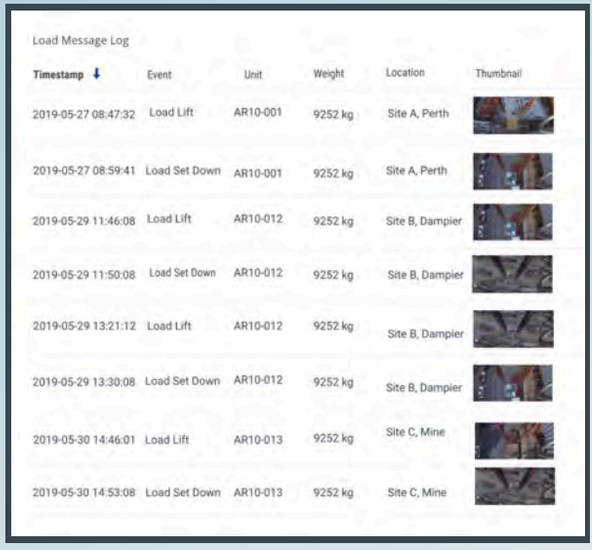
Future capability to **identify** and **categorize** the type of the loads being lifted e.g. a shipping container or a bundle reinforcing steel, etc. by image recognition.

How it works

Onboard AI computer processes the video from the camera → When a person is detected, the AI computer notifies the onboard management computer → Management computer uploads the events (with images) to IoT server for appropriate users to see. It can also use the on-board hardward controller to activate a horn blast to warn personnel to stand clear

Logistics tracking

The Roborigger IoT application is a standalone logistics tracking application.



Load Message Log

Timestamp	Event	Unit	Weight	Location	Thumbnail
2019-05-27 08:47:32	Load Lift	AR10-001	9252 kg	Site A, Perth	
2019-05-27 08:59:41	Load Set Down	AR10-001	9252 kg	Site A, Perth	
2019-05-29 11:46:08	Load Lift	AR10-012	9252 kg	Site B, Dampier	
2019-05-29 11:50:08	Load Set Down	AR10-012	9252 kg	Site B, Dampier	
2019-05-29 13:21:12	Load Lift	AR10-012	9252 kg	Site B, Dampier	
2019-05-29 13:30:08	Load Set Down	AR10-012	9252 kg	Site B, Dampier	
2019-05-30 14:46:01	Load Lift	AR10-013	9252 kg	Site C, Mine	
2019-05-30 14:53:08	Load Set Down	AR10-013	9252 kg	Site C, Mine	

When Roborigger devices or applications linked to the Roborigger database are used for handling loads, the application allows tracking from source to final destination.

The tracking application has a rich feature set. It provides date, time, location, weight and image of the load for each lift and set down.

Currently developing onboard capability to identify loads by **QR code, text recognition** or **RFID**.

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