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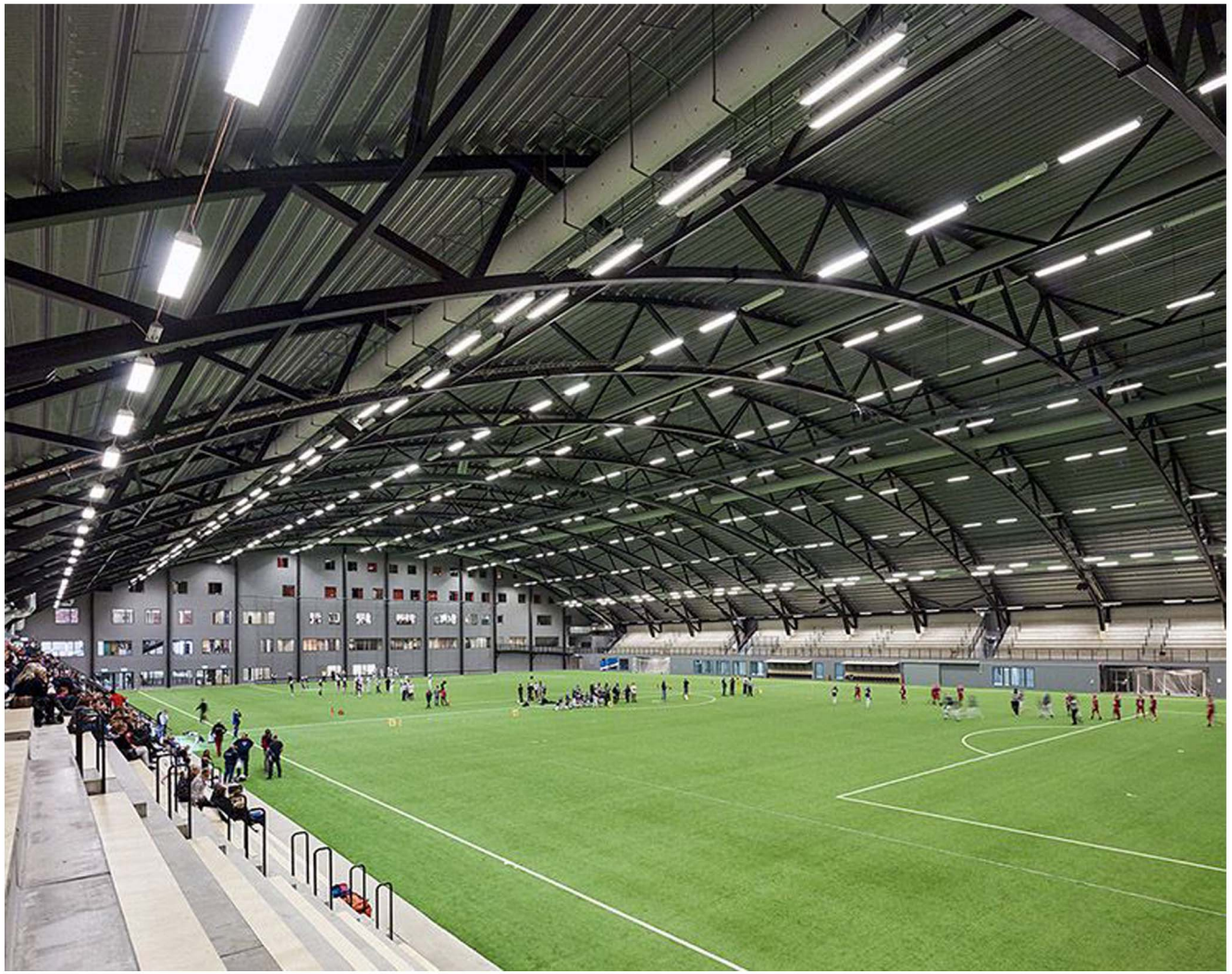
ZigBee™



ZigBee Lighting System OEM Products / Models International and HK Job Reference.

(General and Emergency Lighting)

5 Year Warranty ON ALL MODELS

Industrial

Commercial

School

LED Grow Light

Industrial Lighting Reference

FACTORY
schedule/ OTA/ failure report/ daylight sensor/ motion sensor

WAREHOUSE
group motion sensor/ individual + group motion sensor

INDOOR COURT
scenario switch / real-time/ keep last status/ daylight sensor/ motion sensor

OUTDOOR COURT
scenario switch

WORKSHOP
daylight sensor/ dim switch/ energy data/ sensor reactivate/ 2in1 motion sensor

OTHERS - AQUARIUM
blue n white light control/ scenario app n switch control

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FACTORY - Steel Plant (USA/ November, 2016)

- High bay: 430pcs

- Requirement: Different group of lights with different brightness in different periods of time.

- Solution:

1) Group all lights in 1 workshop as 3 groups.
2) Set different schedules with different brightness for each group.
3) For example, 3 schedules for group1.
Schedule1: brightness 100% at 9a.m.
Schedule2: brightness 50% at 12p.m.
Schedule3: brightness 100% at 15p.m.
Schedule4: brightness 0% at 18p.m.

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FACTORY - Aircraft Maintenance Hangar

(Frankfurt, Germany/ November, 2016)

- 200W High bays: 800pcs

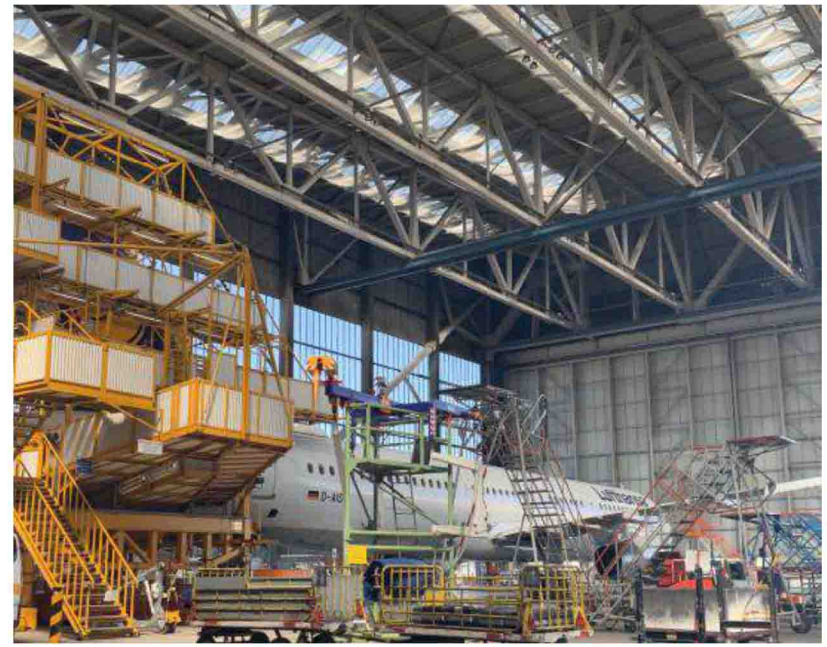
- Retrofit requirement:

Software OTA Update.

High bays are all on when any of the motion sensor senses motion, all off when no one is there.

- Solution:

1) Group all motion sensors as group 1.
2) Group all ZigBee controllers in the same hangar in group 2.
3) Group group 1 + group 2.
4) When any sensor inside hangar detects people, all high bays turn on.
5) All high bays turn off when there is no one.
4) OTA update to fix bug: “setting”-“edit device setting”-“check upgrade”-“update available”.



FACTORY - Train Company (Austria/ December, 2016)

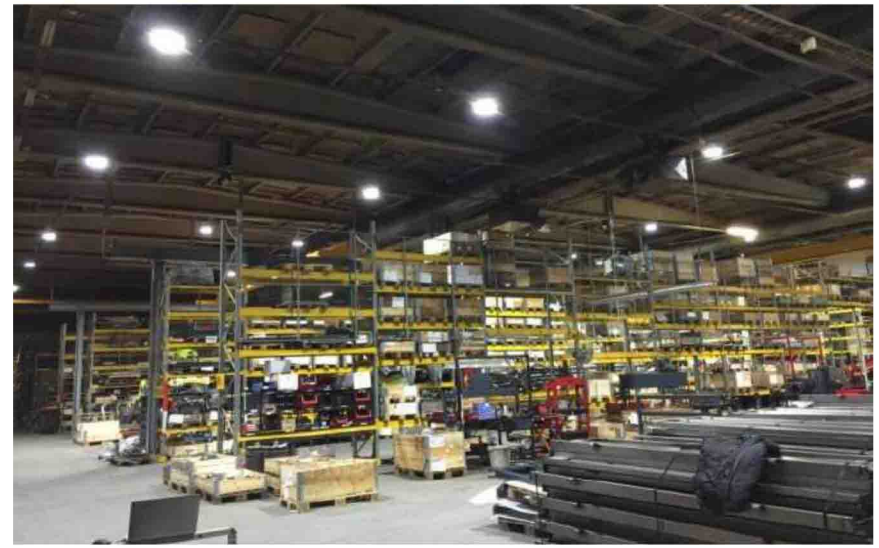
- High bay: 760pcs
- Requirement: Dim by area, dim automatically.
- Solution:

1) Group ZigBee controller separately via phone app.
2) Bind 1 ZigBee daylight sensors with 1 group.
3) Click daylight sensor to get constant lux (every 10 seconds).
4) Set a constant illuminance you need.
5) For example: 250 lux.

When daylight sensor detects ambient 200 lux, it sends a command to ZigBee controller for brightening high bay group to 250 lux.

FACTORY – Cabin Factory

(Ylihärmä, Finland/ February, 2018)



- 150W High bay: 600pcs

- Retrofit requirement:

Keep an eye on failure alert anytime.

High bays are tri-level control: sensor senses motion- all on, no one there- half on, no one there for a period of time – all off.

- Solution:

1) Failure alert shows on phone app directly: “setting”-”system report”-”failure statistics”.

2) Group all motion sensors as group 1, group all ZigBee controllers as group 2, bind group 1 and group 2 together.

3) In “area”, click to set sensor parameter.

4) When any sensor detects people, all high bays turn on. Later dim to waiting level and background level.

FACTORY - Carpet Factory

(Harelbeke, Belgium/ June, 2018)

- 65W tri-proof light: 30000pcs

- Retrofit requirement:

Cost saving.

Easy sensor parameter setting via App.

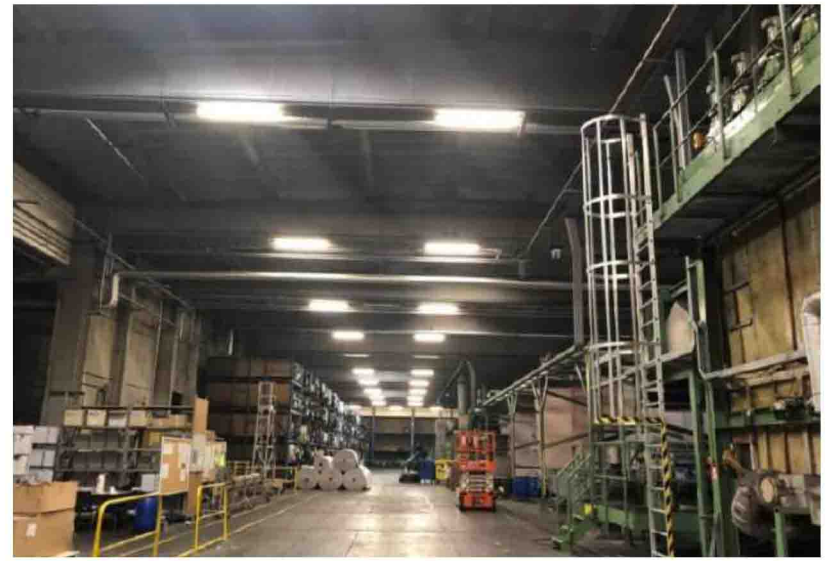
When sensor detects somebody, different group of lights on and keep a constant illuminance, when nobody, lights off.

- Solution:

1) 10 tri-proof lights + 1 ZigBee controller + 1 motion daylight sensor.

2) When motion daylight sensor detects people, 10 tri-proof lights turns on at the same time. When people leave, lights turn off.

3) The same for other lights.



FACTORY - Metal Automotive Component (Czekh/ October, 2018)

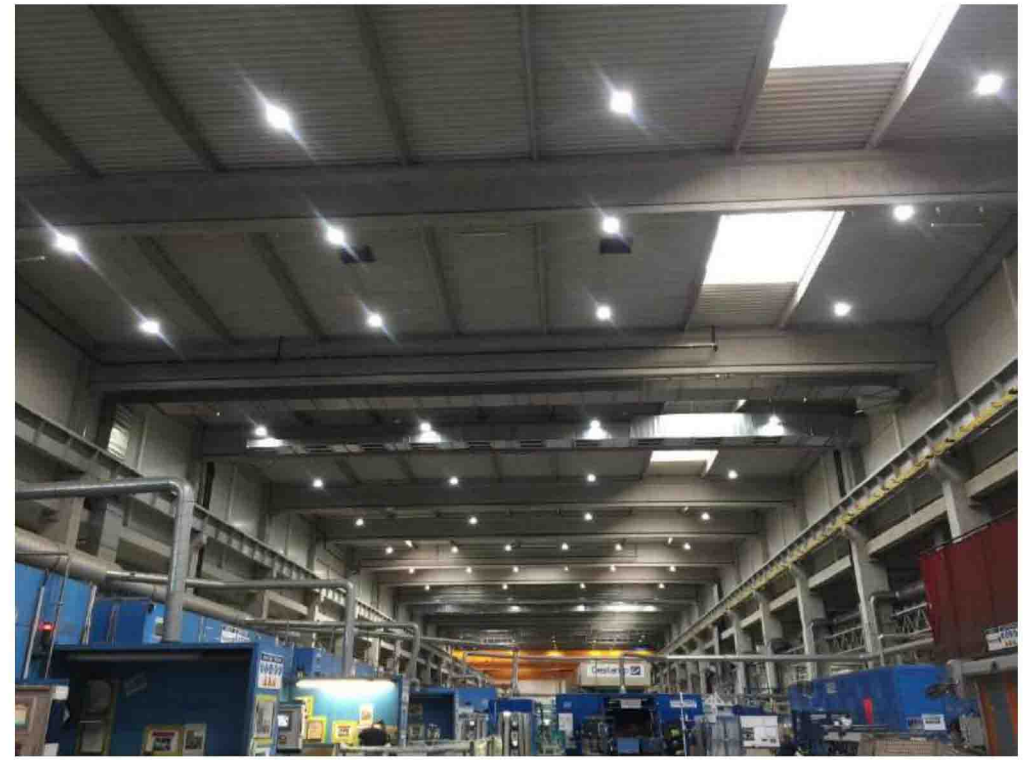
- 200W High bays: 400pcs
- Retrofit requirement: Lights keep in a constant illumination value 24 /7.
- Solution:

1) Group ZigBee controller separately via phone App. Bind ZigBee daylight sensors with groups.

2) Adjust the lights in a specific area to the brightness required.

3) Read the final lux that daylight sensor gets and set a target lux value according to it.

4) Say, if the ambient light is only 200 lux, the daylight sensor will send command to brighten the high bay to reach target lux of 250.



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FACTORY - Metals Company

(Austria/ October, 2018)

- 150W High bays: 300pcs

- Retrofit requirement: 5 High bays as a group, lights are on and keep the ambient light at a fixed lux value rankly when somebody comes. Nobody, dim to 20% for security.

- Solution:

1) Put ZigBee controllers in Light Group 1 via phone app.
2) Put ZigBee motion sensors in Motion Group 1.
3) Bind ZigBee daylight sensor 1 with Light Group 1 and Motion Group 1.
4) Set ZigBee daylight sensor 1 with fixed lux value in Area. Turn it ON.
5) Set Motion Group 1 parameter in Area. Turn it ON.
6) Same commissioning for different areas of the factory.

FACTORY - Stationery & Office Products

(Bilbao, Spain/ January, 2019)

- High bays: 280pcs

- Requirement:

Daylight sensor control. Group motion sensor control.

L/ N traditional switch control.

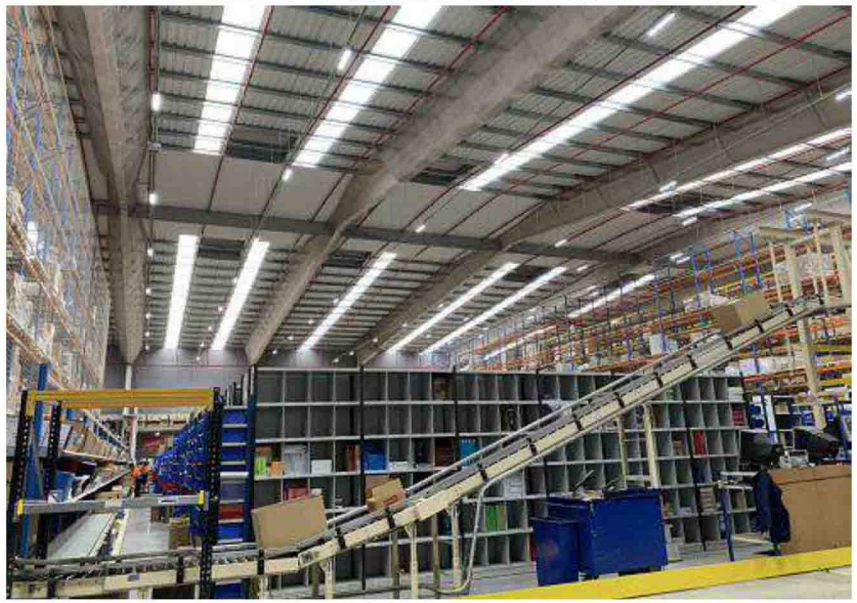
- Solution:

ZigBee items: 280 highbay controllers, 54 motion sensor, 8 daylight sensor and 2 bridges.

Public area: daylight sensor control, 200/400lux, depends on the daylight sensor location, up or down.

Shelf area: 1 line 3 motion sensors, group control. 3-steps dimming, 100%, 60%, 30%.

Bridge: connect to a switch, to control on off from the electrical cabinet, 2 lines.



FACTORY - Metallized Paper

(Genk, Belgium/ March, 2019)

- Tri-proof light: 200pcs

- Requirement:

Group motion sensor control.

Flexible sensing distance setting.

- Solution:

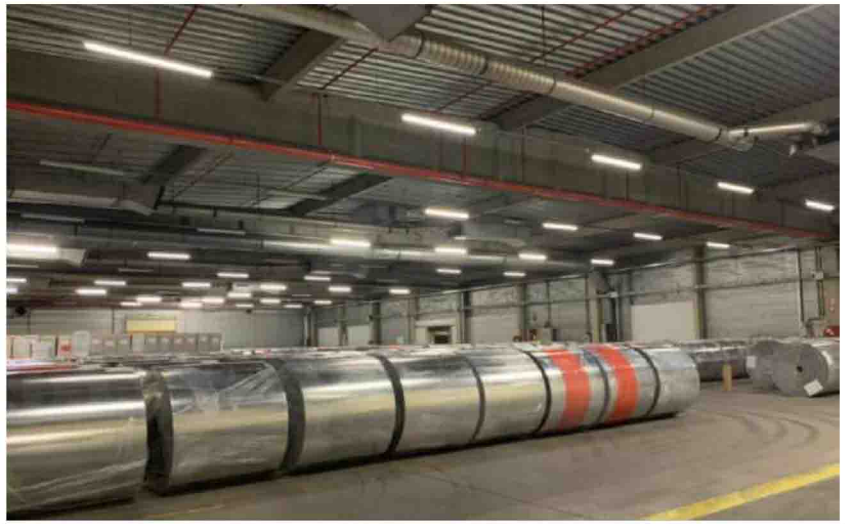
1) Make 4/ 6/ 8 tri-proof lights as groups.

2) 1 motion sensor for 1 light group.

3) Put motion sensor/ light in area.

Click sensor to set “sensing distance”, like max 15mx 60%= 9m

4) When motion within 30m (diameter) x 9m (height) is sensed, tri-proof light group turns on at the same time. When people leave, lights turn off.



WAREHOUSE - LED Lighting Company (Netherland/ December, 2016)

- Lamps: 80pcs

- Requirement: High bays in different areas will be on when people come, off when people leave for 10 seconds.

- Solution:

1) Group ZigBee controllers as 4 groups.
2) Bind motion sensor1 with group1, motion sensor2 with group2, motion sensor3 with group3, motion sensor4 with group4. Set parameters separately.
3) When motion sensor 1 detects people, high bays in group 1 will be on. All off when people leave for 10 seconds.
4) The same for group 2, group 3, group 4.

WAREHOUSE - Famous Logistics Company (Finland/ January, 2018)

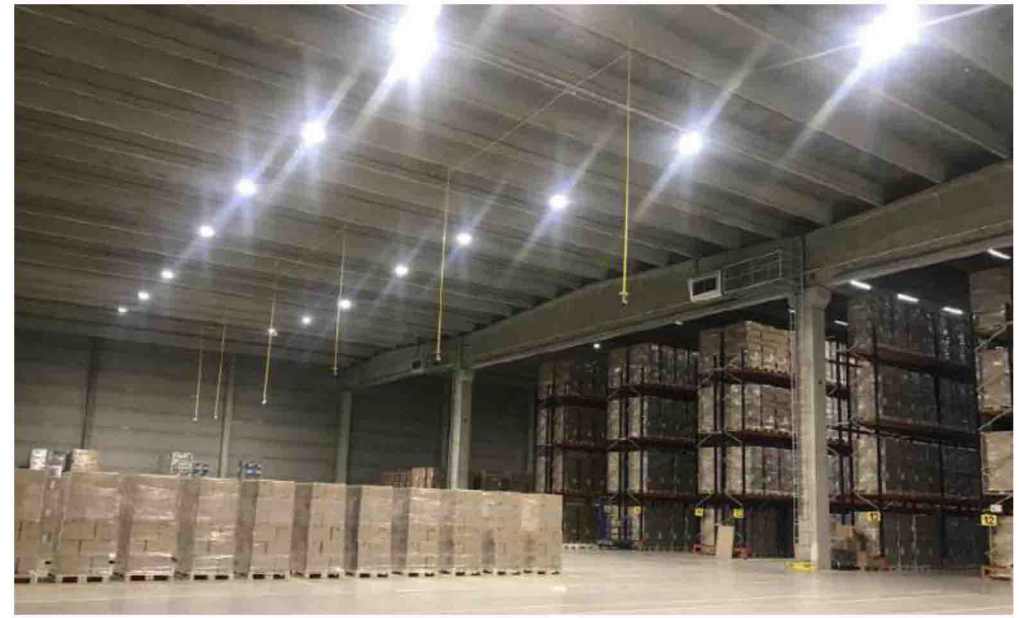
- 240W High bays: 200pcs
- 50W Linear light: 280pcs

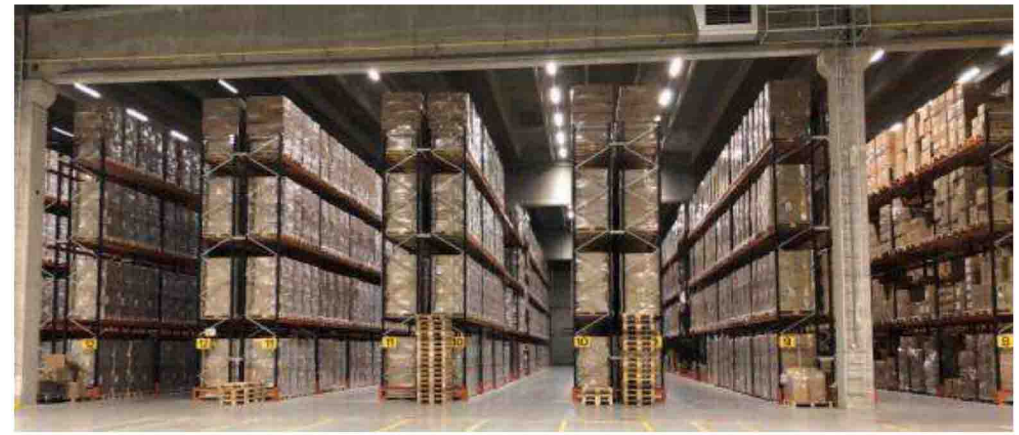
- Retrofit requirement: With motion, all fixtures in the public area will be adjusted according to the sensor setting. With motion, fixtures from a specific shelve line and from the public area will both be adjusted according to the sensor setting.

- Solution:

1) Public area: Bind all motion sensors as MG-01, bind all ZigBee controllers in LG-01, bind MG-01 and LG-01 together in “Pubic Area”. When any sensor detects people, all lights turn on. All high bays turn off when there is no one.

2) Shelve area A: Bind motion sensors as MG-A, bind ZigBee controllers as LG-A, bind MG-A with MG-01 and LG-A in “Shelve Area A”. When any movement under Shelve area A detected, lights of both Shelve area A and Public area turn on, and later dim to waiting level and background level.





INDOOR COURT - 8 Basketball Courts (Australia/ February, 2016)

- High bay: 390pcs

- Requirement:

Dim lights by court.
Set Game mode/ Training mode/ Leaving mode.

- Solution:

1) Group all lights in the same court as one via phone.
2) Bind group with wall dimming switch.
3) Make 3 scenarios on switch.
Scenario 1 - Game Mode. Brightness 100%.
Scenario 2 - Training Mode. brightness 80%.
Scenario 3 - Leaving mode. Brightness 0%.

INDOOR COURT - Natatorium (Australia/ April, 2017)

- 400W Flood light: 66pcs

- Retrofit requirement:

IP65 waterproof.

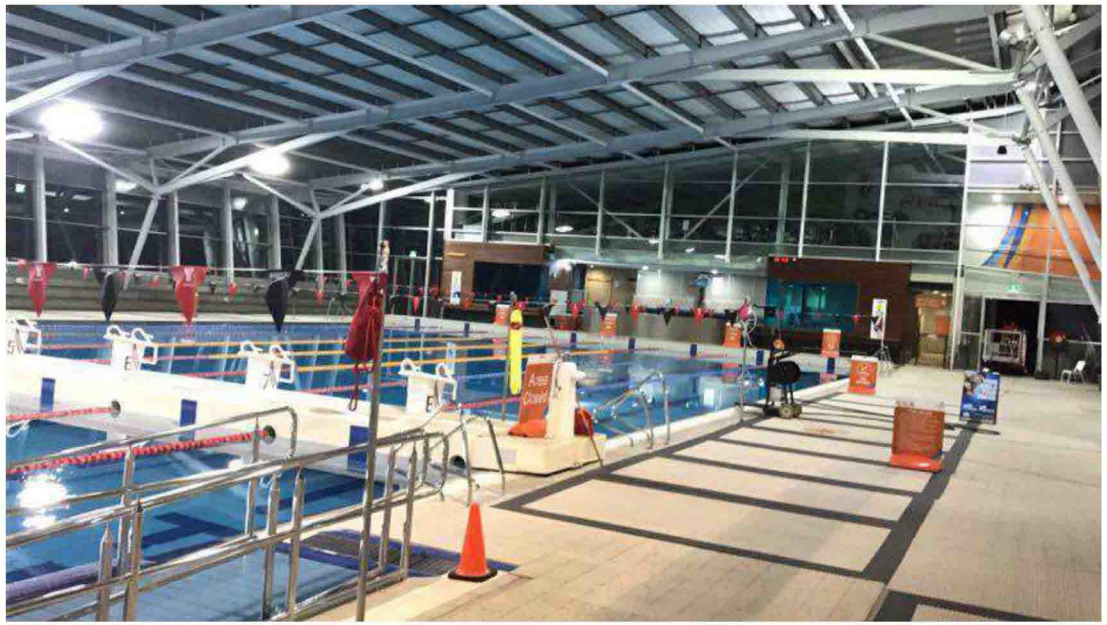
All light keep same brightness the whole day.

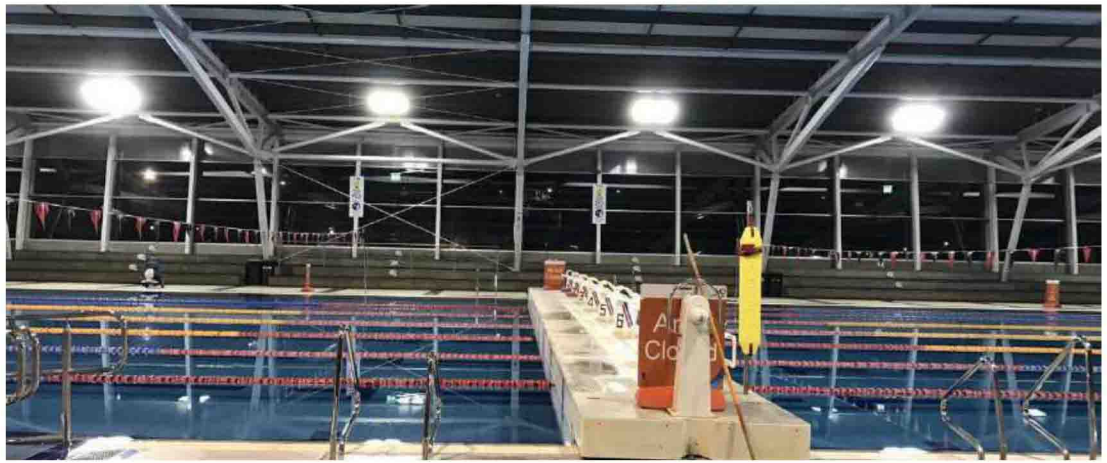
- Solution:

1) Group 33 flood lights under same ambient light.

2) Bind 1 daylight sensor with flood light group. Set a favorite constant illuminance.

3) 33 flood lights keep pre-set brightness the whole day.





INDOOR COURT - Ice Skating Rink (USA/ January, 2018)

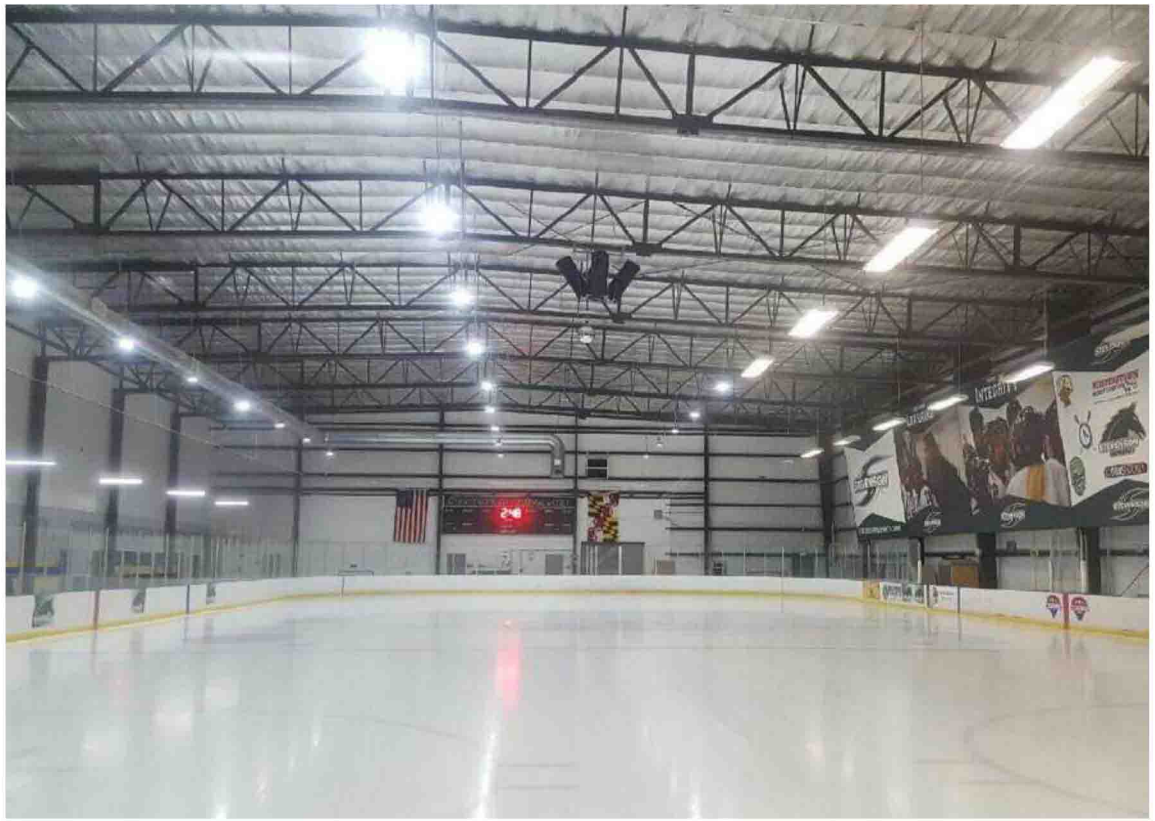
- High bay: 156 pcs

- Requirement:

High bays motion control.
Lights keep the last status when power off and on.

- Solution:

1) Group all motion sensors, group all ZigBee controllers, bind sensor group and controller group.
2) When any motion sensor in the ice rink detects people, all high bays will be on. All high bays will be one when there is no one.
3) Keep the last status for controller: “setting”-”edit device”-”device list”-”edit device”-”setting wheel”-”save device status”.



INDOOR COURT - 2 Basketball Courts (USA/ January, 2018)

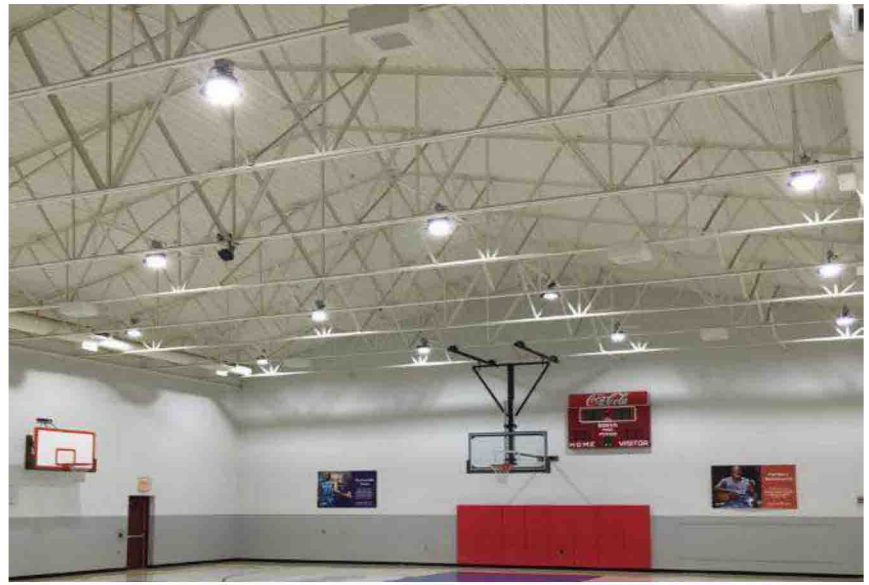
- High bay: 86pcs

- Requirement:

High bay all on when people come, all off when people leave.
Check light status especially if lights are on or not via app.
Control lights remotely.

- Solution:

1) Group 1: all motion sensors in the same court.
Group 2: all ZigBee controllers in the same court.
Group 1+2: group 1 and group 2.
2) when any sensor in the court detects people, all high bays will be on.
3) All high bays will be off when there is no one.
4) “Area”: real-time status/ power/ current/ voltage data of devices will be listed.
5) 2 kinds of remote control:
- WiFi anywhere to control lights.
- 3G/ 4G from mobile to control lights.



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INDOOR COURT – Ice Hockey Arena (Västerås, Sweden/ May, 2018)

- 150W High bays: 180pcs
- Retrofit requirement: Different scenario for different mode.
- Solution:

1) Create scenario on the app. For example,

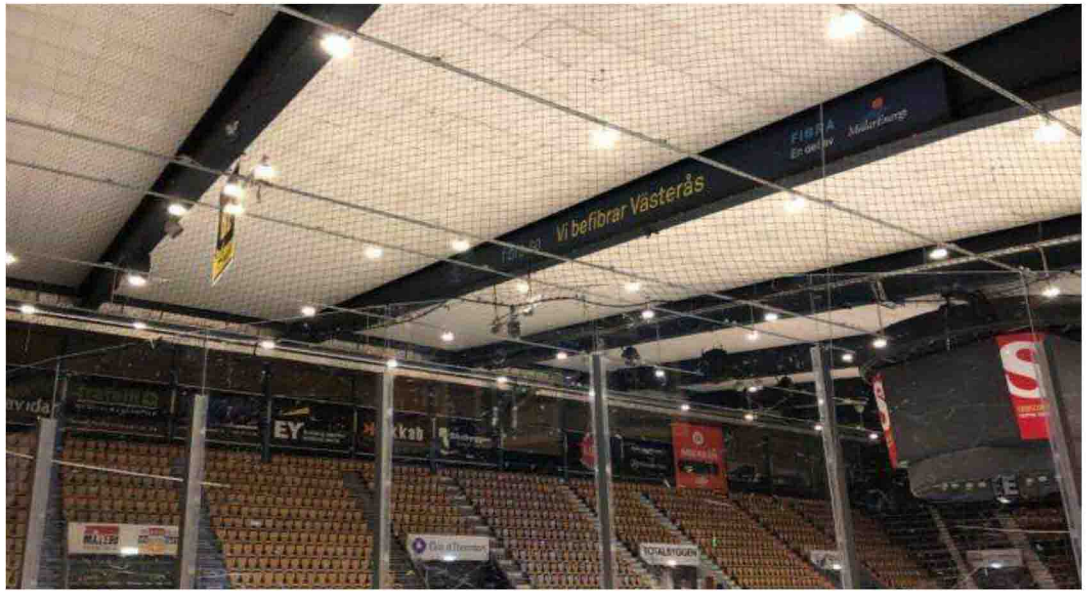
Match mode: Court - required lux. Auditorium - suitable lux for watching match.

Training mode: Court - required lux. Auditorium – all off.

Cleaning mode: Court - suitable lux for cleaning. Auditorium –suitable lux for cleaning.

Close mode: Court – all off. Auditorium –all off.

2) Use a pad to download scenario from App and put it on the central platform.



OUTDOOR COURT - Tennis Court (Netherland/ March, 2018)

- 600W Flood light: 16pcs

- Requirement:

30m < required control range <100m.

SPD10K.

scenario switch control.

- Solution:

1) 1 controller to 1 pole.

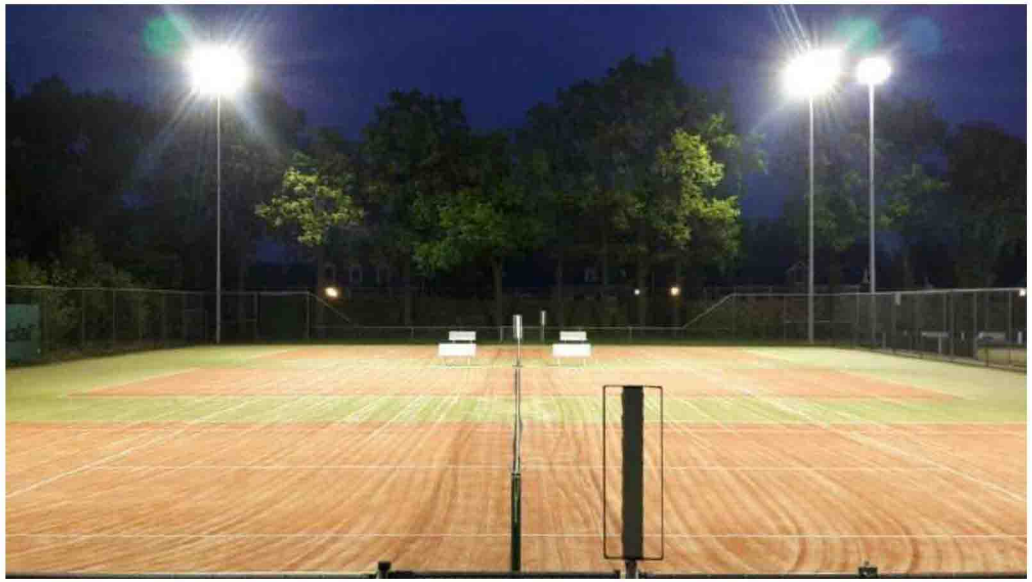
2) Prepare separate IP65 box for router/ gateway. 1m <distance between gateway and router <30m.

2) Place gateway/ router/ switch/ the first 100m controller on the first pole.

3) Distance between switch and the 1st controller is <30m.

4) Distance between the 1st controller to next controller is 100m. And so on.

5) Set 6 different scenarios “Training” ”Competition” etc. by app, download scenario to switch.



WORKSHOP – FAST Auto Drive Co., Ltd

(Xi'an, China/ March, 2017)

- 150W High bays: 463pcs

- Retrofit requirement:

All high bays are controlled by motion daylight sensor individually.

Sensor stops working when manual control is activated. After a period of time, sensor re-start to work.

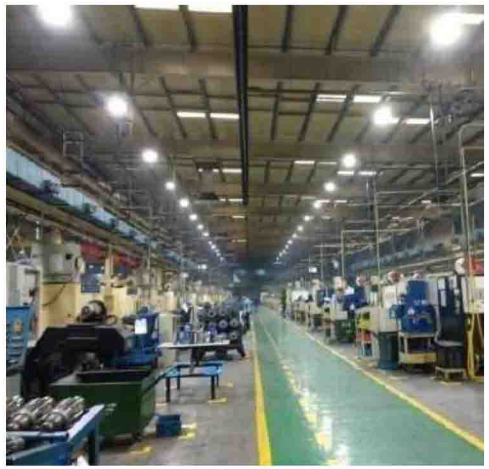
- Solution:

1) 1 high bay + 1 ZigBee controller + 1 motion daylight sensor.

2) When motion daylight sensor detects motion, the high bay turns on and keeps a constant lux. It turns off when no motion for 15 seconds.

3) Bind dimming switch by the app. Slide to dim and save a proper brightness.

4) Sensor auto re-activated: "setting"-"edit device"-"device list"-"edit device"-"setting wheel"-" sensor auto re-activated in xx minutes"



WORKSHOP – SOKON Metal Products

(Chongqing, China/ October, 2017)

- 150W High bays: 360pcs

- Requirement:

Dim automatically according to ambient light.

Manual control for special cases.

- Solution:

1) Put ZigBee controller in different groups via phone app.

2) Put ZigBee daylight sensor with groups accordingly.

3) Set a constant illuminance to favorite lux. All high bays keep that lux value even ambient light changes.

4) Bind dimming switch and remote control via app. Staffs can dim themselves when needed.

WORKSHOP – SOKON Metal Products

(Chongqing, China/ October, 2018)

- 150W High bays: 2000pcs
- 60W Linear light: 2000pcs

- Requirement:

Constant illuminance daylight sensor control.

Manual control.

Read energy consumption data for all devices.

- Solution:

1) Place energy measurement controller in front of a circuit, to get energy data of whole circuit.

2) Group ZigBee non-energy measurement controllers via phone app. Bind ZigBee daylight sensors with controller groups.

3) Set a constant illuminance for all fixtures to be kept all the time.

4) Bind dimming switch and remote control accordingly.

WORKSHOP – FAW TOYOTA Motor Co., LTD

(Changchun, China/ February, 2019)

- 120W High bays: 3000pcs

- Retrofit Requirement:

Easy construction/ set-up/ maintenance.

To get lights status/ energy consumption report weekly.

PC control based on local server.

Data backup.

- Solution:

1) Linux server app control: local server based/ login by web browser/ drag to add device/ positioning on floorplan.

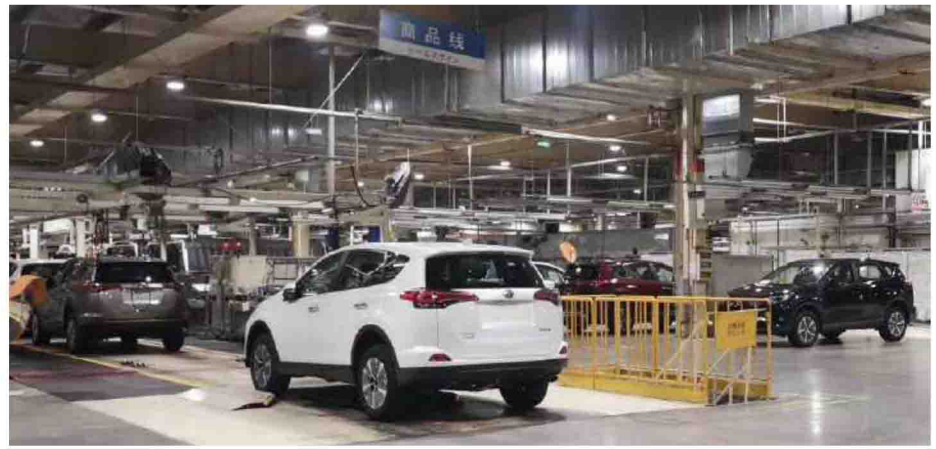
2) Preset recipient email address will get 3 kinds report weekly:

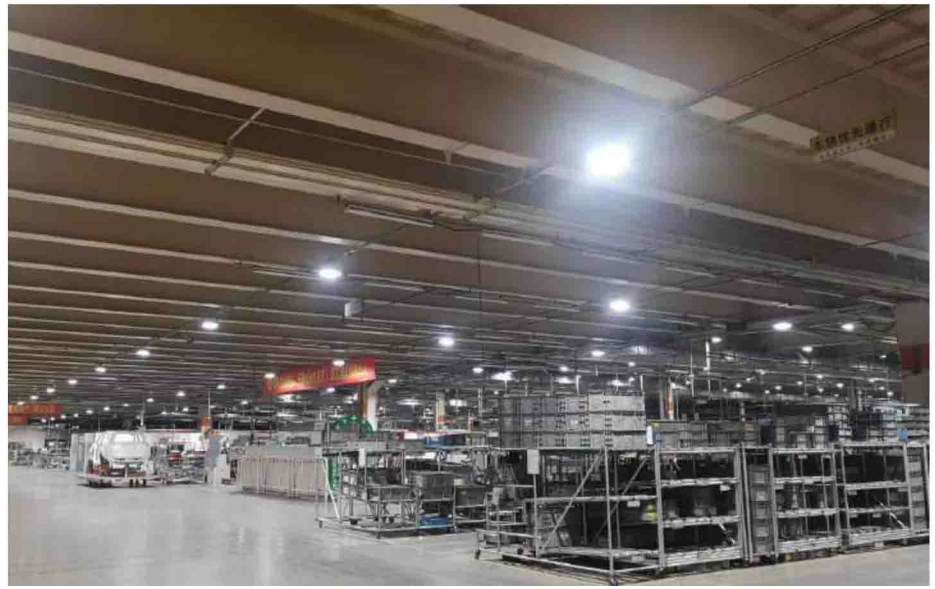
Energy measurement: all devices/ area/ group/ individual device.

Failure alert: offline/ abnormal power.

Device status: real-time power/ current/ voltage, and serviced life/ alert/ device type/ device quantity.

3) “setting - backup & recovery”: support microSD card data back-up.





OTHERS - Aquarium

(Yangzhou, China/ November, 2017)

- CCT High bays: 50pcs

- Requirement:

Blue/ white light control.

Scenario starts/ ends gradually during 10 minutes.

Should avoid animal “scared” by bursts of light.

- Solution:

1) 2 controllers per high bay for blue/ white light.

2) Set different area for jellyfish/ dolphin etc. Control individually.

3) Run schedule from 14:00-16:00 in acting area.

4) Make scenario “on duty” “off duty” “performance” “clean” on app. Download to wall switch for daily use.

5) Schedule and scenario are with fade in/ out 300 seconds function. Say, on off lights smoothly in 300 seconds.

Commercial Lighting Reference

MUSEUM
schedule/ dim switch

SUPERMARKET
Windows server app sensor/ energy measurement/ sensor control

OFFICE
motion sensor/ daylight sensor/ dim switch

HOTEL
dim switch/ set schedule in scenario

HOSPITAL
Linux web server app/ auto test of emergency lighting/ schedule

OTHERS - RAILWAY STATION
total control by phone/ server app

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MUSEUM - 8 Rooms
(Shanghai, China/ October, 2016)

- Track light: 420pcs

- Requirement: App control, schedule control, easy set up.

- Solution:

1) Use app on phone to group all track lights in 1 room as 5 groups.
2) Set different schedules with different brightness for each group.
3) Set scenarios for different group on different clothes.
4) Use touch switch for on/ off/ dimming daily control.

Take schedule of the whole lights in one room for example.
Schedule1: brightness 100% cct 3500k at 10a.m. when the museum is open.
Schedule2: brightness 70% cct 4500k at 12a.m.
Schedule3: brightness 80% cct 5000k at 3p.m.
Schedule4: brightness 100% cct 4500k at 6p.m.
Schedule5: brightness 100% cct 3500k at 8p.m.

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SUPERMARKET – Shopping Center (Sweden/ December, 2018)

- 40W Downlight: 750pcs
- 25W Downlight: 825pcs

- Retrofit requirement:

Windows web server app control. Motion sensor control. Daylight sensor control. Energy measurement.

- Solution:

1) Identity all downlights as 50 areas.

2) Drag to add drivers/ 1 daylight sensor/ 1 motion sensor/ 1 Energy measurement controller each area in Server App.

3) Group driver/ 1 daylight sensor/ 1 motion sensor. They bind with each other automatically.

4) Once someone comes, relevant area of lights will be on at a fixed lux from daylight sensor setting. 300 seconds later, motion sensor dim lights to 30%.

5) 1 Energy measurement controller calculates and shows energy data from 1 area of downlights.

6) Read energy data/ real-time status from server app. Receive above reports automatically from email.

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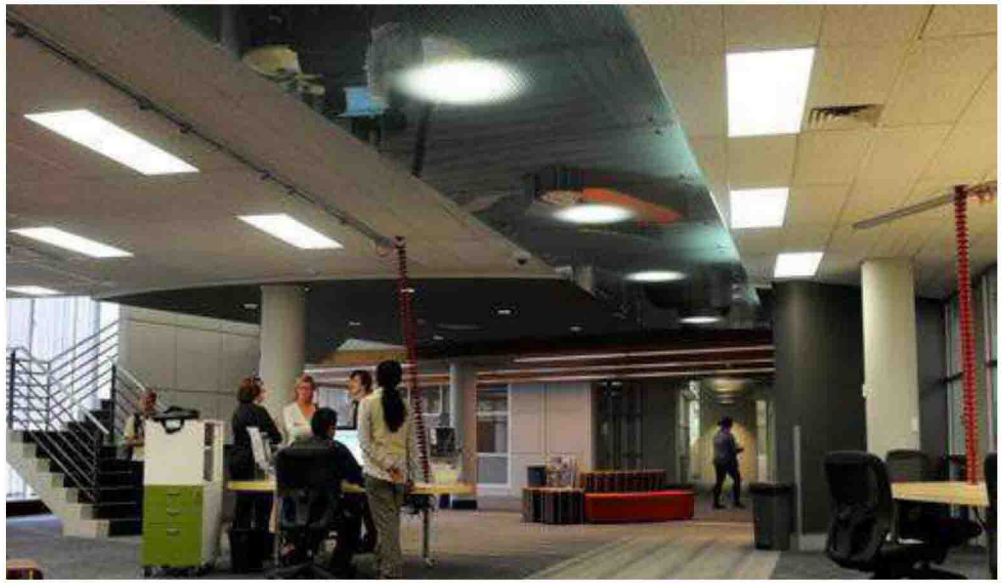
OFFICE - Factory
(France/ August, 2016)

- Panel light: 320pcs

- Requirement: When there's motion, lights on and listen to daylight sensor to keep a fix lux level. When there's no motion, lights off as set for motion sensor.

- Solution:

1) 1 driver to 1 panel.
2) Use phone app to group panels as different groups. Group motion sensor as groups.
3) Bind daylight sensor with panel group.
4) Bind daylight sensor with motion sensor group.
5) Put motion sensor group/ panel group/ daylight sensor in one area. Click to do parameter.



OFFICE - Maccura Biotechnology Co., Ltd.
(Sichuan, China/ May, 2017)

- 40W CCT panel: 96pcs

- Retrofit requirement: Dim by wall switch.

- Solution:

1) Use app to make all panels in 1 office as different groups.
2) Dim manually to set different brightness/ color temperature for groups.
For example.
Channel1: brightness 100% cct 3500k.
Channel2: brightness 70% cct 4500k.
Channel3: brightness 80% cct 5000k.
3) Use touch switch for on/ off/ dimming/ color changing daily control.

OFFICE - Zhenhua Port Machinery Company (Shanghai, China/ August, 2017)

- 40W CCT panel: 100pcs
- 25W CCT downlight: 200pcs
- CCT LED strip: 100pcs

- Retrofit requirement:

Manual CCT changing in public area.

Pad app controls each meeting room.

- Solution:

1) Use pad app to bind different types of lights in meeting room as groups. Panel/ downlight/ LED strip group.

2) Set an area “meeting room” includes relevant lights. Change CCT by app from light/ group/ area.

3) Set an area “public area” includes relevant lights. Pair switch with light group. Save 5 different CCT manually.

OFFICE - Verstraete Bouw

(Roeselare, Belgium/ November, 2018)

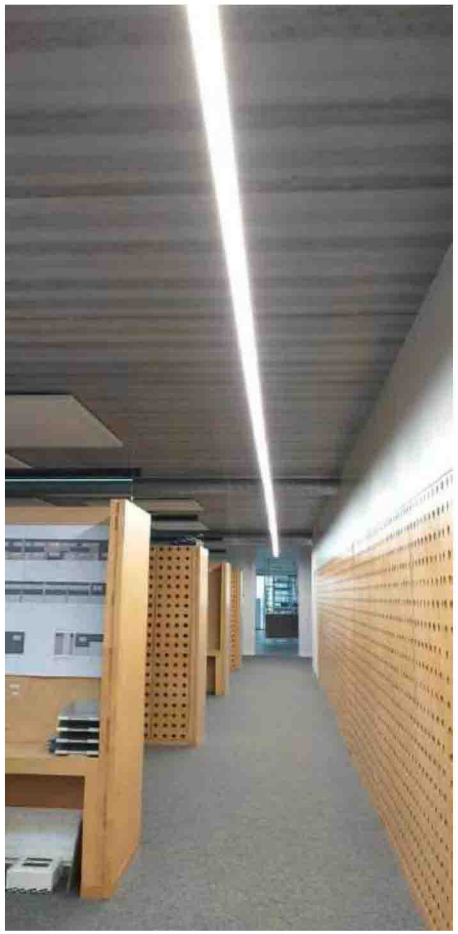
- 80w 2.5M CCT linear light: 300M in total

- Retrofit requirement:

Group of lights on when somebody comes, off when nobody.
CCT changing gradually during 10 hours according to schedule.

- Solution:

1) Make 5 lights as a group.
2) 1 motion sensor 1 group. With motion, 5 lights turn on at 100%. No motion in 360 seconds, they dim to 0%.
Task level: 100%. Task level hold time: 360 seconds.
Waiting level: 0%. Waiting level hold time: 10 seconds.
Background level: 0%.
3) Set CCT schedule with fade in/ out function.
Star time: 08:00 2700K.
End time: 18:00 6500K.
Fade in/ out: 36000 seconds.



HOTEL - Dubai Hotel

(Dubai, UAE/ October, 2017)

- 25W downlight: 3000pcs
- RGB LED strip: 500pcs

- Requirement:

Individual app/ switch control by area.

Change color over a period of time in “performance” scenario.

Optional to change settings themselves.

- Solution:

1) Group lights and put in a area via phone app.

2) Bind groups with dimming wall switch. Change color on app/ switch.

3) Set schedules.

4) Set “performance” scenario.

5) Select and import schedules to “performance” scenario. During scenario, schedule runs automatically.

HOTEL - Haikou Hotel

(Hainan, China/ November, 2017)

- 40W Downlight: 600pcs

- Requirement:

Individual app/ switch control by area.

Change color manually.

- Solution:

1) Group lights and put in an area via phone app. Name with paired picture for easily recognizable.

2) Bind groups with dimming wall switch.

3) Change color on app/ switch.

7 HOSPITALS
(Hong Kong/ June, 2018)

Hospital Authority Head Quarter 醫院管理局总部

Princess Margaret Hospital 瑪嘉烈醫院

Pamela Youde Nethersole Eastern Hospital 東區尤德夫人那打素醫院

Queen Elizabeth Hospital 伊利沙伯醫院

Queen Mary Hospital 瑪麗醫院

Tseung Kwan O Hospital 將軍澳醫院

Tuen Mun Hospital 屯門醫院

- 22W tube: 1000pcs
- 25W downlight: 3000pcs
- Emergency Light: 1000pcs

- Retrofit requirement: Use local server to control each floor with account management. Group motion sensor control.
  Auto Test of Emergency Lighting.

- Solution:

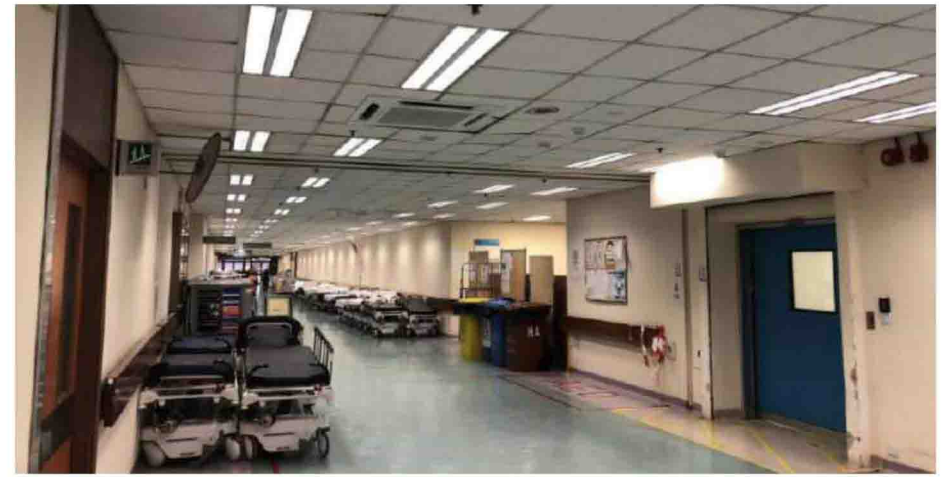
1) Use Linux Web server based on hospital's local server.

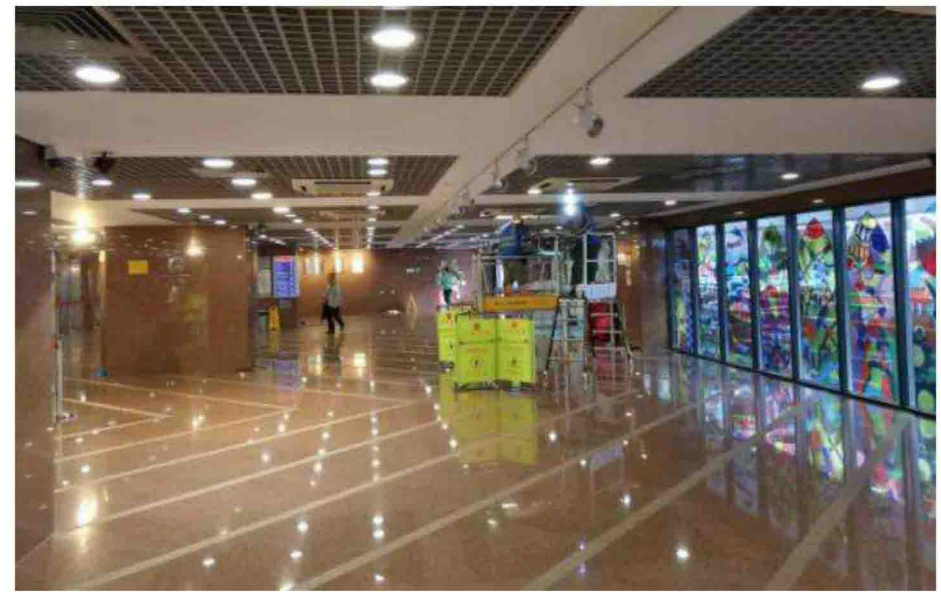
2) Admin account defines area/ scenario/ schedule functions to 20 user accounts.

3) Set motion sensor/ tube group in public area. Bind groups together. Set a schedule to start at 22:00 and end at 08:00.

4) During 22:00-08:00, when any sensor detects people, all tubes turn on.

5) Do auto test includes emergency lighting function/ duration monthly. Report will be sent to preset email address.





OTHERS - Railway Station
(Beijing, China/ August, 2018)

- 45W Downlight: 3000pcs

- Retrofit requirement:

Control 3000pcs devices together by phone/ PC.

- Solution:

1) 1 gateway links 100 downlights. 30 gateways in total.

2) Create an Area includes 3000pcs devices on phone App. Long press that area to on/ off/ dim all devices together from 30 gateways.

3) Login Linux web server app by Google chrome. On/ off/ dim all together in one Area.

School Lighting

SCHOOL

daylight sensor/ scenario switch/ energy measurement

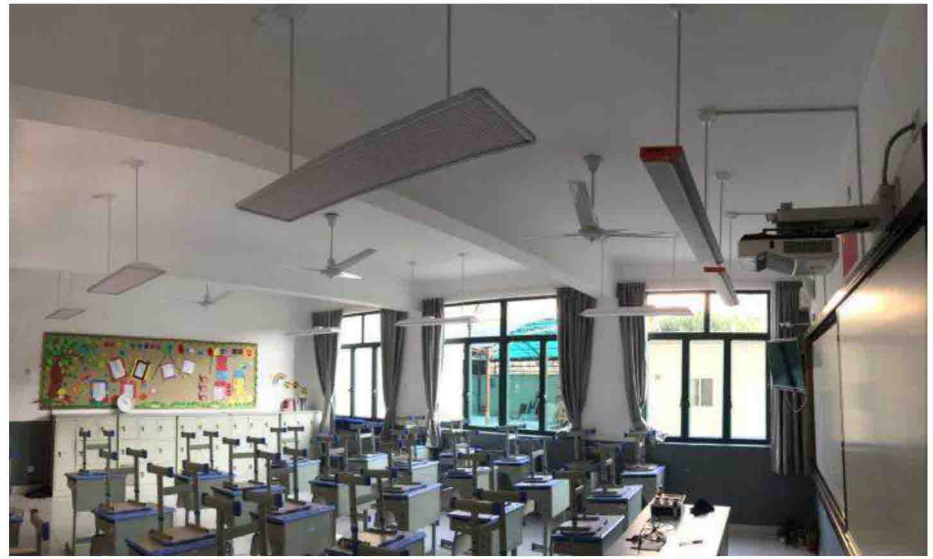
SCHOOL - ShangHai XinJing Middle School (Shanghai, China/ December, 2016)

- 40W dimming panel: 264pcs

- Requirement: Scenario switch control on the lights in the classroom.

- Solution:

1) Use phone app to group 6 panels + 2 blackboard lights in 1 classroom.
2) Set different scenarios for the group, in class mode, after class mode, PPT mode, test mode.
3) Download scenarios to scenario switch and put it on the teacher's platform.



iCON www.icon-culture.com

SCHOOL - 22 Classrooms (Suzhou, China/ January, 2018)

- Panel light: 198pcs

- Retrofit requirement:

Keep table constant illuminance 500lux.

Scenario control.

Energy measurement.

- Solution:

1) 1 energy measurement controller for 1 classroom, to get energy data of whole circuit.

2) 1 driver for 1 panel. Group ZigBee drivers rankly by app.

3) Bind 1 ZigBee daylight sensor with 1 driver group.

4) Set a daylight sensor constant illuminance to keep table 500lux in area.

5) Set different scenarios: in class/ after class/ PPT/ test mode.

6) Download scenarios to a scenario switch and put it on the teacher's platform.

LED Grow Light

PLANT LIGHTING

total phone app control/ schedule run one by one

iCON www.icon-culture.com

PLANT LIGHTING
(Singapore/ October, 2016)

- 3 color plant light: 200pcs

- Requirement:

One click to control all.

Schedule automatically control.

- Solution:

1) Put all lights in one area. Long press that area to on/ off/ dim all together.

2) Set schedule includes START and END time with different status. For example.

Brightness 100%, red, 08:00 – 16:00.

Brightness 100%, green, 16:00 – 00:00.

Brightness 100%, blue, 00:00 – 08:00.

Select “execute successively”.

3) When the 1st timer is completed, it goes to the 2nd timer then the 3rd automatically.