Template for Evidence(s)
UI GreenMetric Questionnaire

University : Universiti Malaysia Pahang
Country : Malaysia
Web Address : http://www.ump.edu.my/ and http://mygreen.ump.edu.my/

[2] Energy and Climate Change (EC)

[2.3] Smart Building Implementation

UMP Pekan

No	Name	Place	Automation		Safety				Energy		Water		Indoor Environr				Lighting				Building Area	Status
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	m2	SB
1	FTKMA	UMP PEKAN, MALAYSIA	X			X	X		X			X	X	X			X	X		X	24,890	Smart building
2	FTKEE		X			X	X		X			X	X	X			X	X		X	14,673	Smart building
3	FTKPM		X			X	X		X			X	X	X			X	X		X	20,191	Smart building
4	ASRAMA 648		X			X	X										X	X		X	13,263	Smart building
5	ASRAMA 1400		X			X	X										X	X		X	17,992	Smart building
6	CTAR		X			X	X					X	X	X			X	X		X	9,558	Smart building
7	DEWAN SERBAGUNA		X			X	X						X	X			X	X			10,940	Smart building
8	POS PENGAWAL JALAN TEGAK		X			X	X										X	X			20	Smart building
9	PUSAT PEMBANGUNAN & PENGURUSAN HARTA		X			X						X					X	X		X	1,214	Smart building
10	RUMAH KAKITANGAN (40 UNIT)		X									X					X			X	3,610	
11	TAPAK SEMAIAN		X			X	X					X					X	X		X	284	Smart building
12	PENCAWANG 33kV		X			X	X		X				X	X			X				879	Smart building
13	PENCAWANG 11kV		X			X	X						X	X			X				150	Smart building
14	LIBRARY		X			X	X		X			X	X	X			X	X		X	5,940	Smart building
15	PTMK & PBM		X			X	X					X	X	X			X	X		X	14,966	Smart building
16	PUSAT KESIHATAN UNIVERSITI		X			X	X										X	X		X	1,017	Smart building
17	MENARA JAM		X			X											X	X			345	
18	RUMAH KAYAK		X			X						X					X	X			467	Smart building
19	SURAU		X									X					X	X		X	113	Smart building
20	TEACHING FACTORY		X			X	X					X	X	X			X	X		X	8,405	Smart building
21	PEJABAT KESELAMATAN		X			X	X					X					X	X		X	576	Smart building
22	PUSAT AKTIVITI PELAJAR, PAP		X			X	X						X	X			X	X		X	3,038	Smart building

***Smart Building : Min. at least five requirements for each building.**

UMP Gambang

No	Name	Place	Automation		Safety				Energy		Water		Indoor Environment				Lighting				Building Area	Status
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	m2	SB
1	3 BLOK A	UMP GAMBANG, MALAYSIA	X			X	X										X			X	8,771	Smart building
2	5 BLOK B		X			X	X										X			X	7,968	Smart building
3	15 BLOK C		X			X	X										X			X	38,544	Smart building
4	ASTAKA		X			X	X										X			X	1,331	Smart building
5	FAS. BUILDING		X			X	X										X			X	4,073	Smart building
6	CAFETERIA KK1 & KK3		X			X	X										X			X	1,544	Smart building
7	MASJID		X			X	X					X					X				3,107	Smart building
8	BLOK M		X			X	X										X				613	
9	BLOK X		X			X	X										X			X	3,814	Smart building
10	BLOK Y		X			X	X										X			X	2,834	Smart building
11	BLOK Z		X			X	X										X			X	1,890	Smart building
12	KPU (PEJ 2 TINGKAT)		X			X	X		X				X	X			X			X	5,562	Smart building
13	MAKMAL TT1		X			X	X						X	X			X			X	34,591	Smart building
14	KOLEJ KEDIAMAN KE 2		X			X	X		X								X			X	31,061	Smart building
15	BLOK W		X			X	X										X				5,405	
16	KOMPLEX BARU		X			X	X										X	X		X	27,398	Smart building
17	KK4 UMPH		X			X	X		X								X				17,475	Smart building
18	KOMPLEX UMPH		X		X	X	X										X			X	8,433	Smart building
19	LIBRARY		X			X	X													X	5,870	
20	KOMPLEX SUKAN		X			X	X										X			X	4,920	Smart building

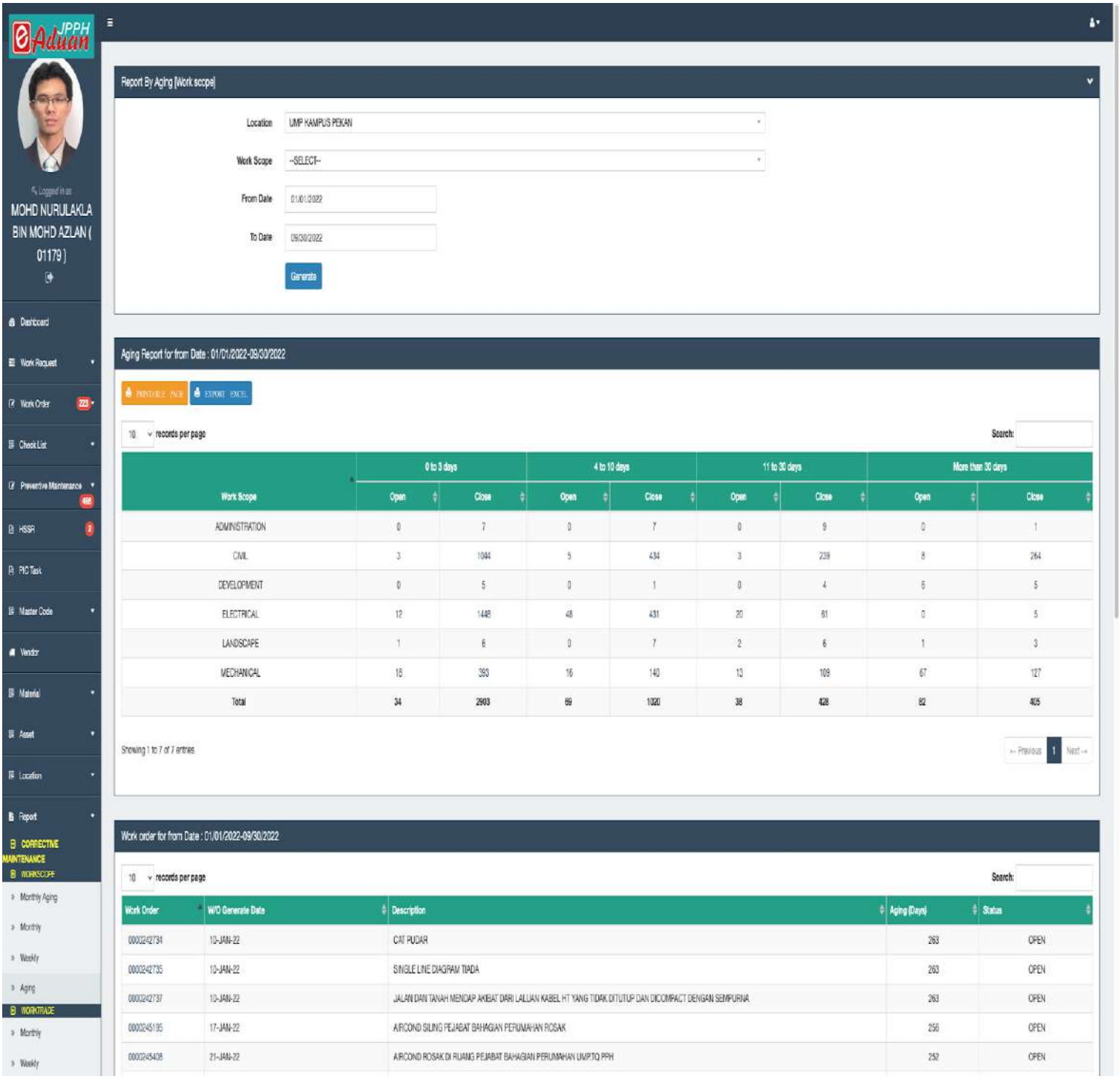
Smart building implementation

$$\frac{total\ smart\ building\ area}{total\ building\ area} \times 100\%$$

Total Building Area: 487,188 m²

$$\frac{351{,}892\ m^2}{484{,}627\ m^2} \times 100\% = 72.6\%$$

Note: One building could be classified as a smart building if it has a minimum of 5 features. Please add the total smart building area from buildings which are classified as smart buildings.



Facility Management System, FMS in UMP. Inhouse software development.

SMART CARD DOOR ACCESS - Security – 873 In/Out Access system are implemented in all buildings in Universiti Malaysia Pahang

Reader 1 (In)

Reader 2 (Out)

ASIS technologies
www.asis-technologies.com

ACU1000 Four/Eight Door Access Controller

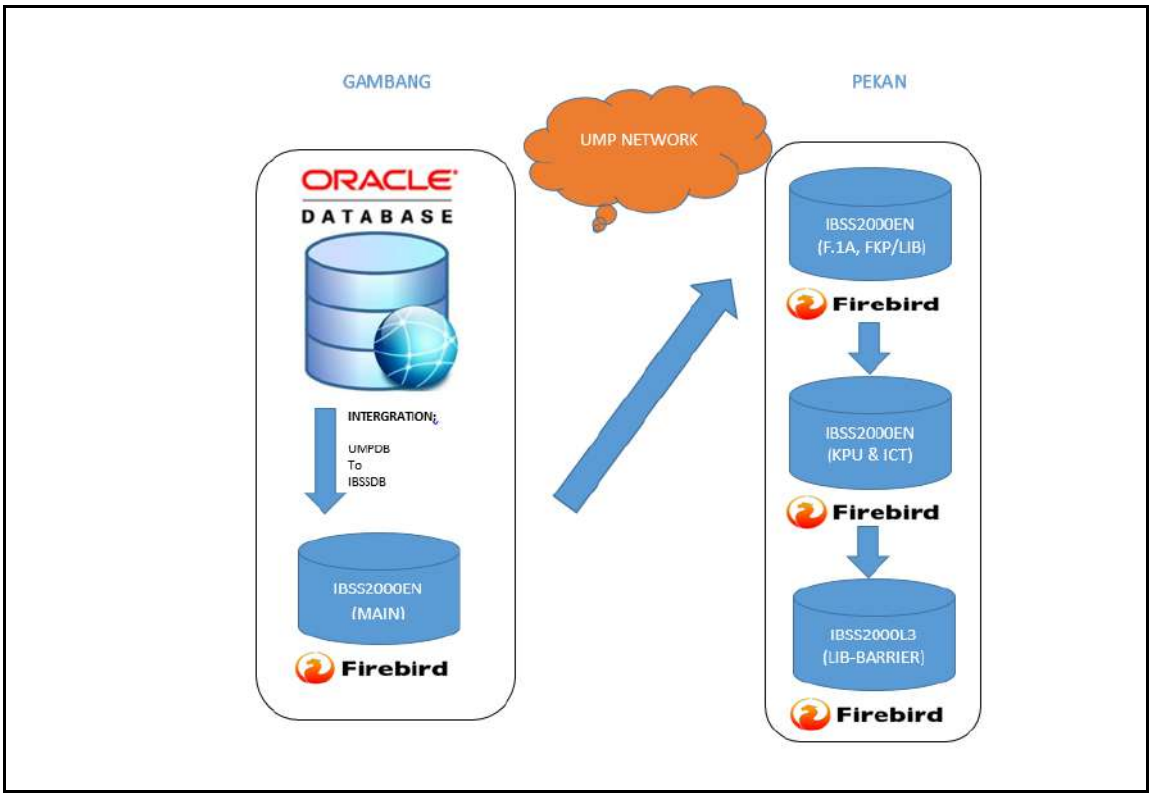
The **ACU1000** is an intelligent, multi door controller suited for enterprise security. Its modular architecture and plug-n-play design makes it truly versatile. The **ACU1000** can be used for door access, lift access and car park system. With advanced on board networking, the **ACU1000** is the ideal solution for Ethernet LAN/WAN connectivity.

Fully scalable, the **ACU1000** can operate as a standalone unit or with full networking of up to 2,048 access control readers and 45,000 input/output points.

1. Key Features

- Support TCPIP protocol and RS485 network communication between controller and software
- Detection automatic for each additional module with plug-able connectors , without software changes
- Modular 4 reader boards with up to 176 input/output points
- Modular 10A power supply unit with battery backup and automatic switchover
- Built-in lighting/surge protection circuits
- Supervised alarm input for open circuit and short circuit detection
- Flash memory design for easy controller software upgrade
- Support standard Wiegand format and RS485 interface for proximity, biometric & MIFARE readers
- 100,000 cardholders and 200,000 events
- Highly expandable from standalone unit up to 2048 access control reader and 45,000 input/output points
- Multiple access groups (4 x 256)
- Interface to advanced Windows based user-friendly GUI software (IBSS2000)

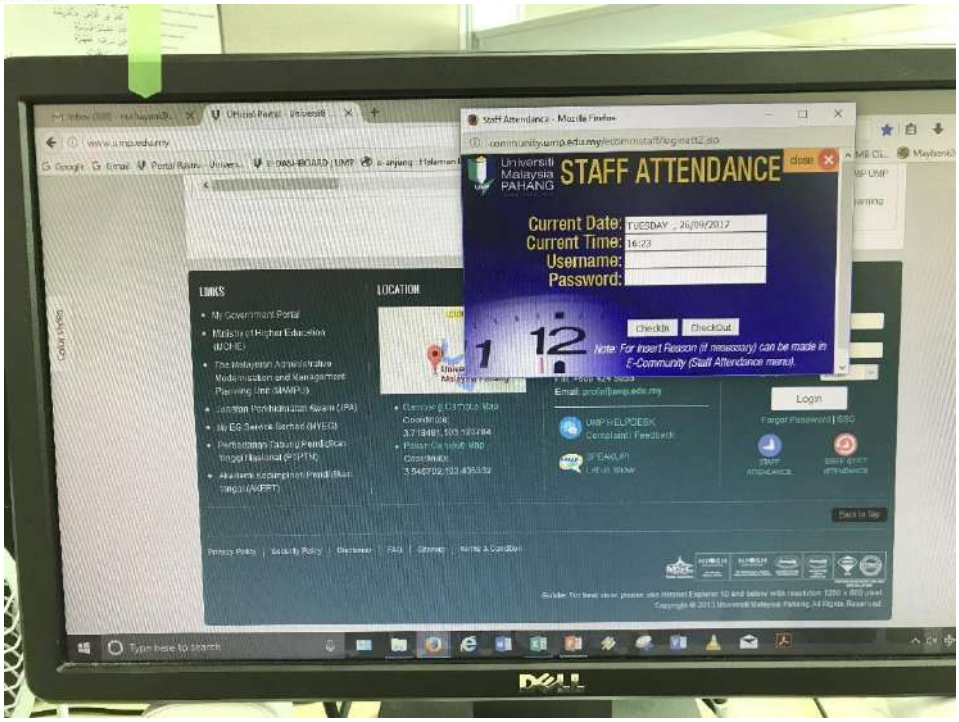
The system key features



The system diagram

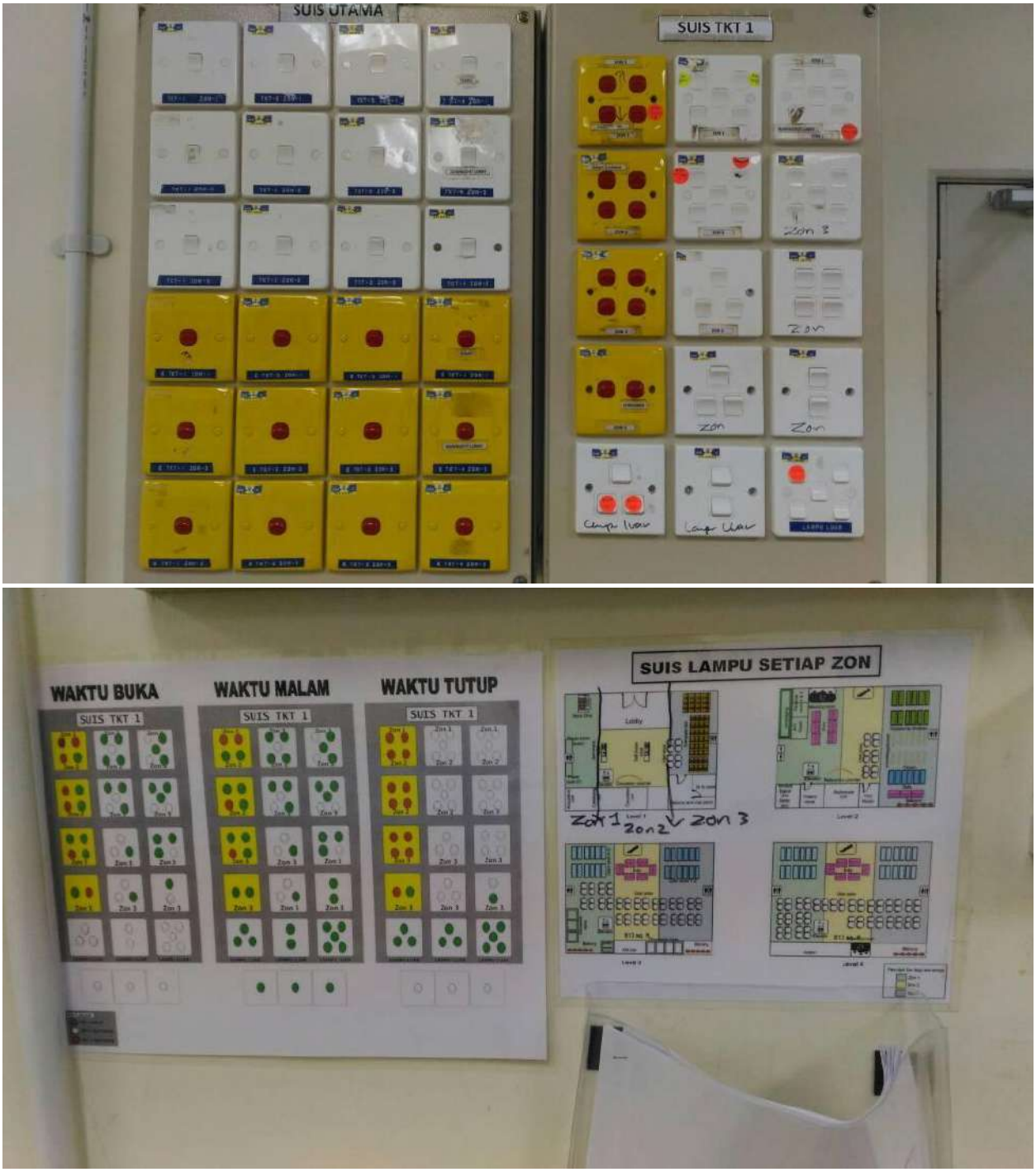
Bil	ITEM/MODEL	LOCATION	ASIS - PRODUCT	CONTROLLER	READER
1	IBSS2000EN	GAMBANG	**ASIS**	95	323
2	IBSS2000EN	FASA 1A (FKEE/FKM/FKP/LIB)	**ASIS**	86	386
3	IBSS2000EN	PUSAT ICT & KPU	**ASIS**	33	160
4	IBSS2000L3	LIBRARY (BARRIER GATE)	**ASIS**	2	4

The access card system data output



Online check in and check out system – to record staff attendance

Kiosk attendance – Staff attendance record systems

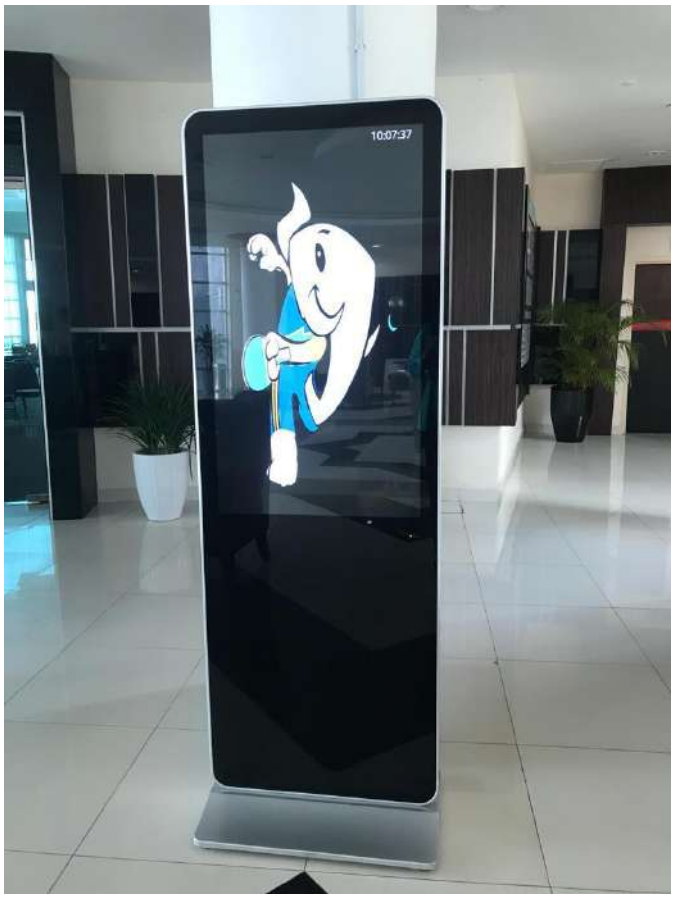


Master switching system

CCTV control room to monitor 382 camera around campus

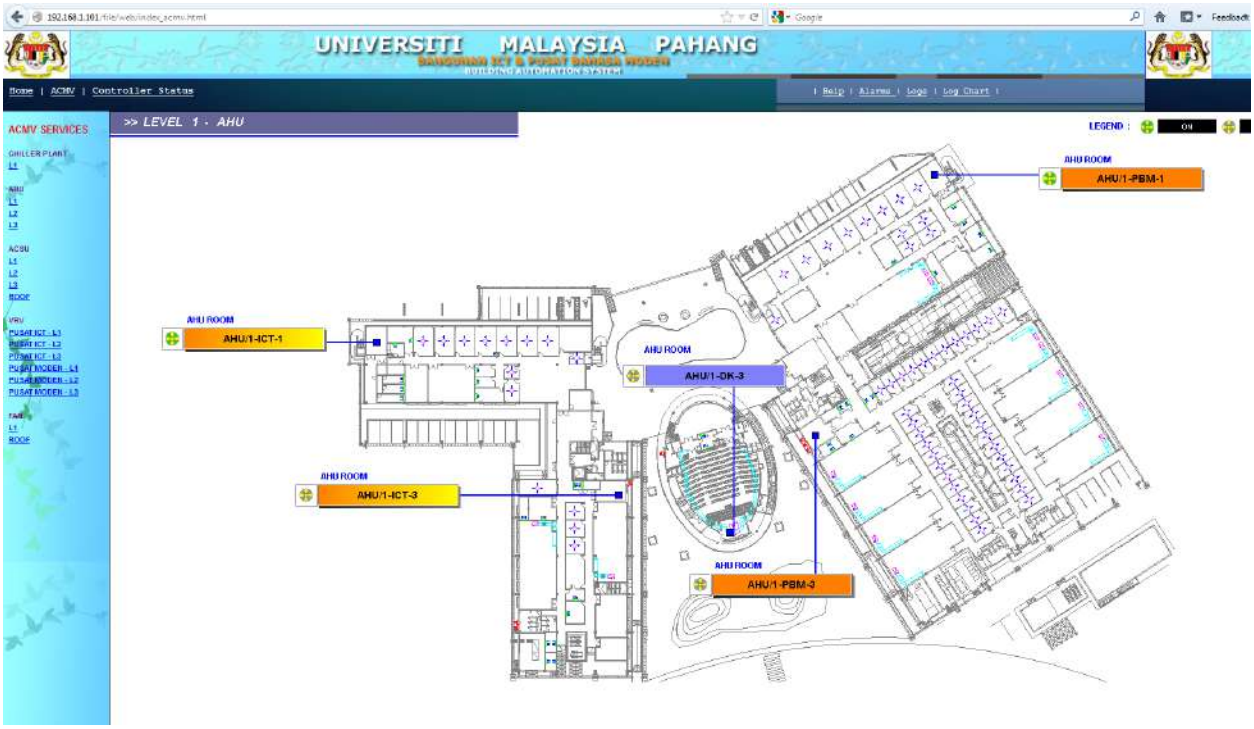
UMP install sensor at the toilets, recently more than 160 sensors been install at the admin and hostel toilets. The sensors control 4 to 5 lights and a exhaust fan for each toilets. The sensor detects motion and thermal of the user.

Automatic door using sensor

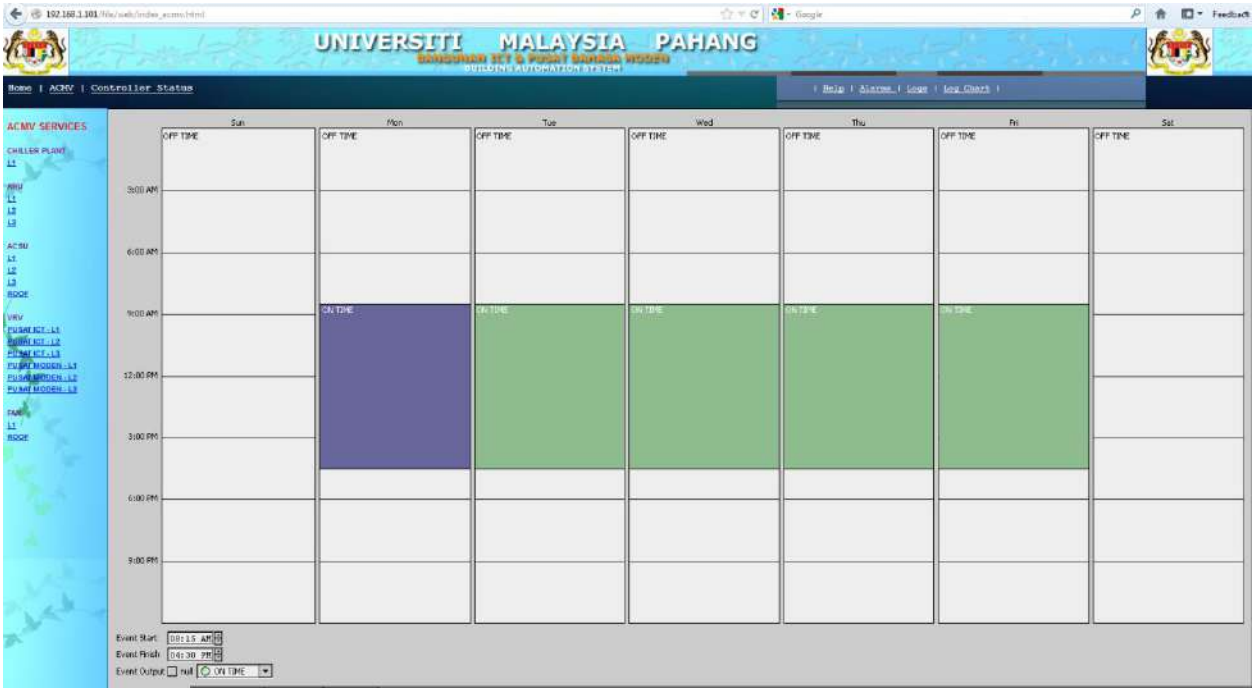


Digital LED – to provide and promotes latest information and events in campus

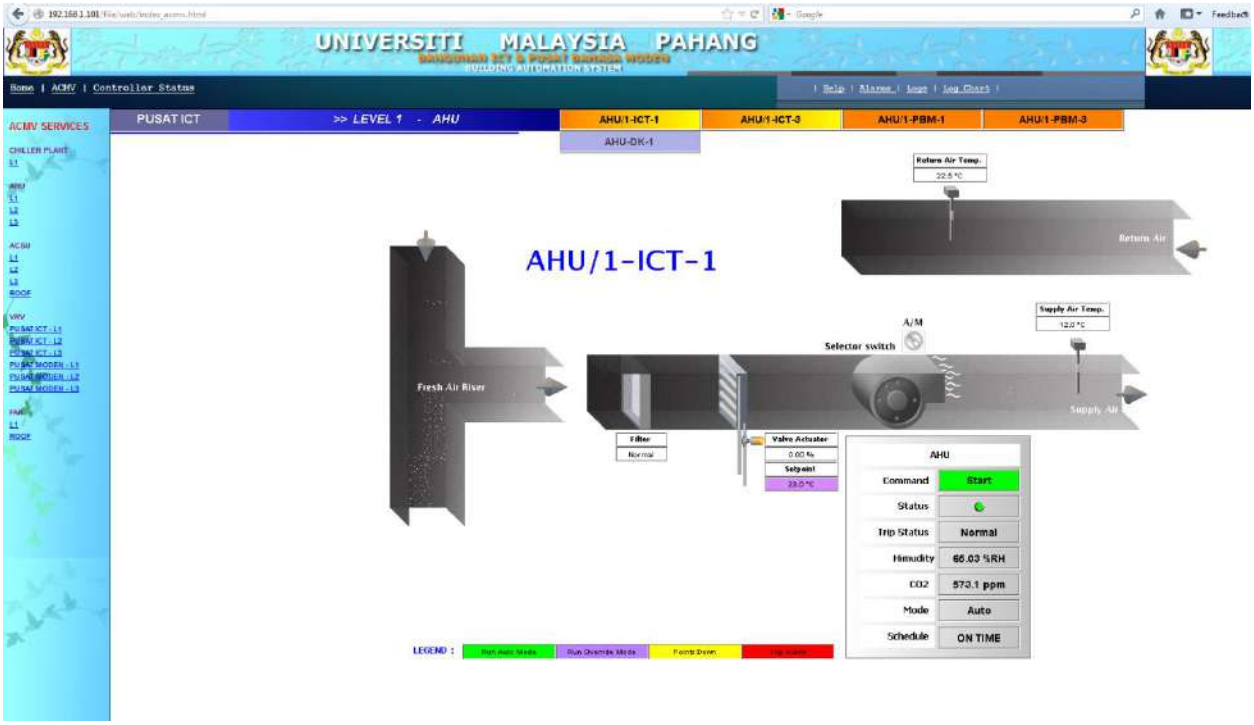
Buiding Automated System for PTMK & PBMSK Building



Layout of building

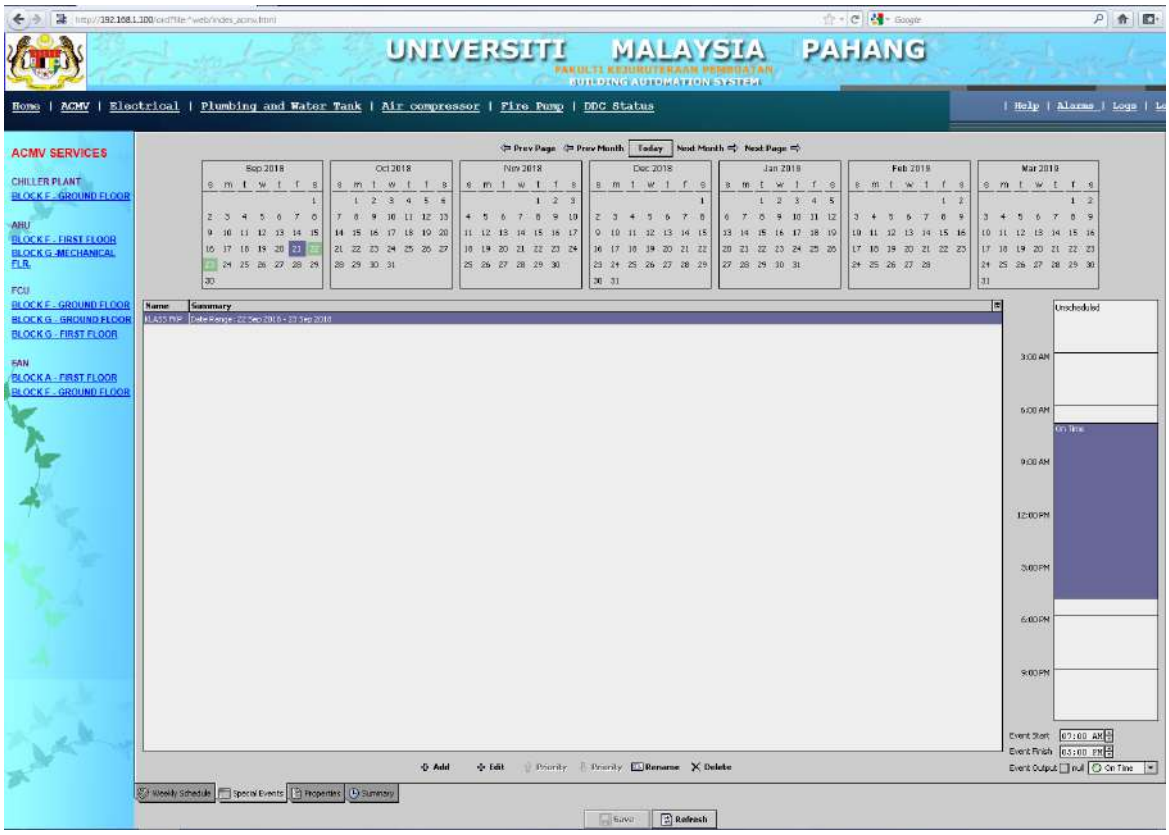


Controller status - time setting

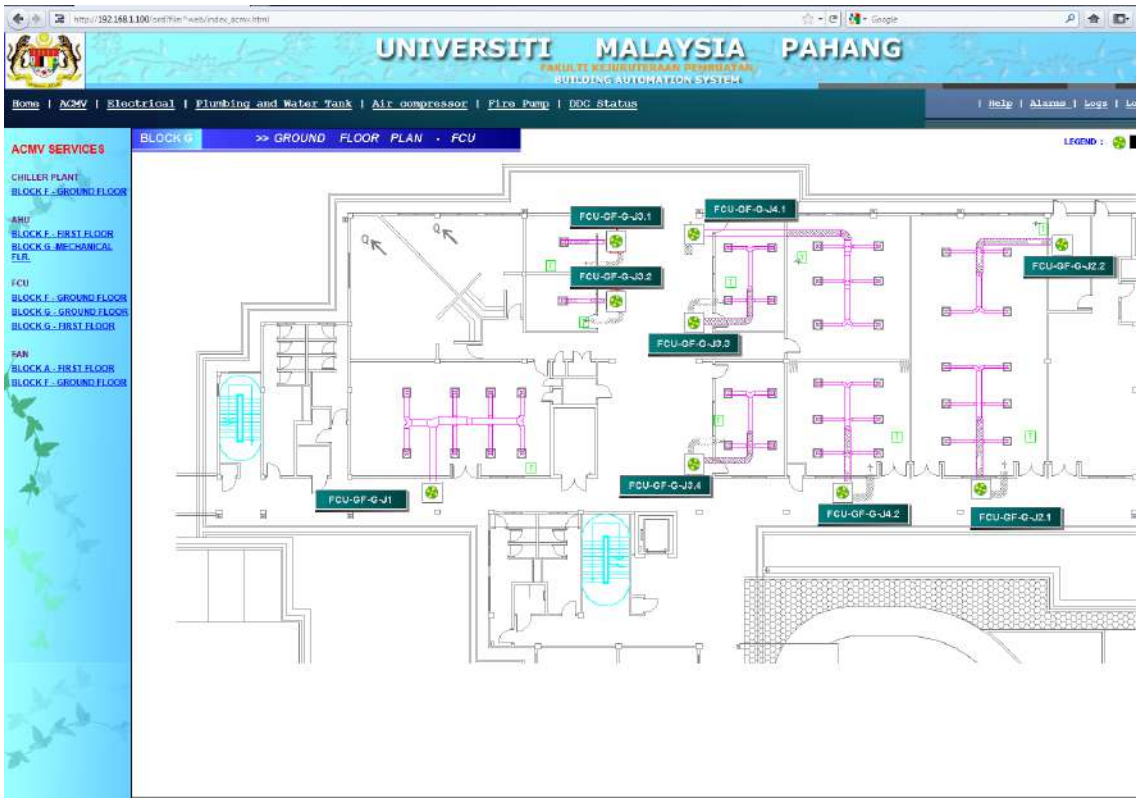


Controller status

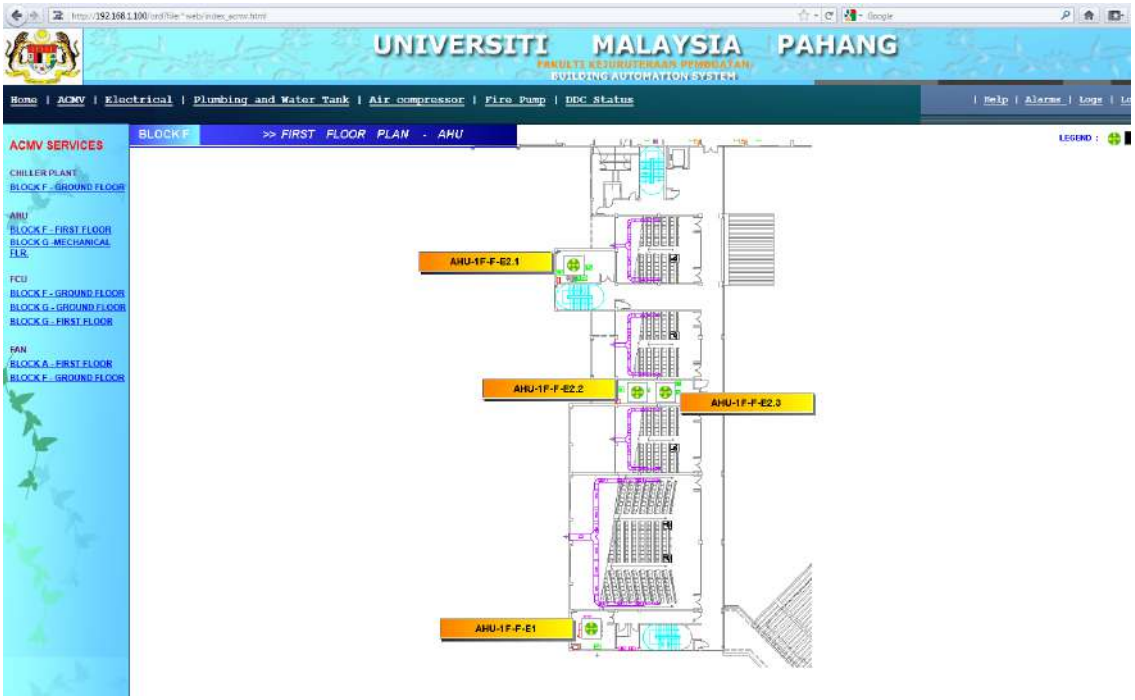
Building Automated System for FKP



Controller status - Time setting

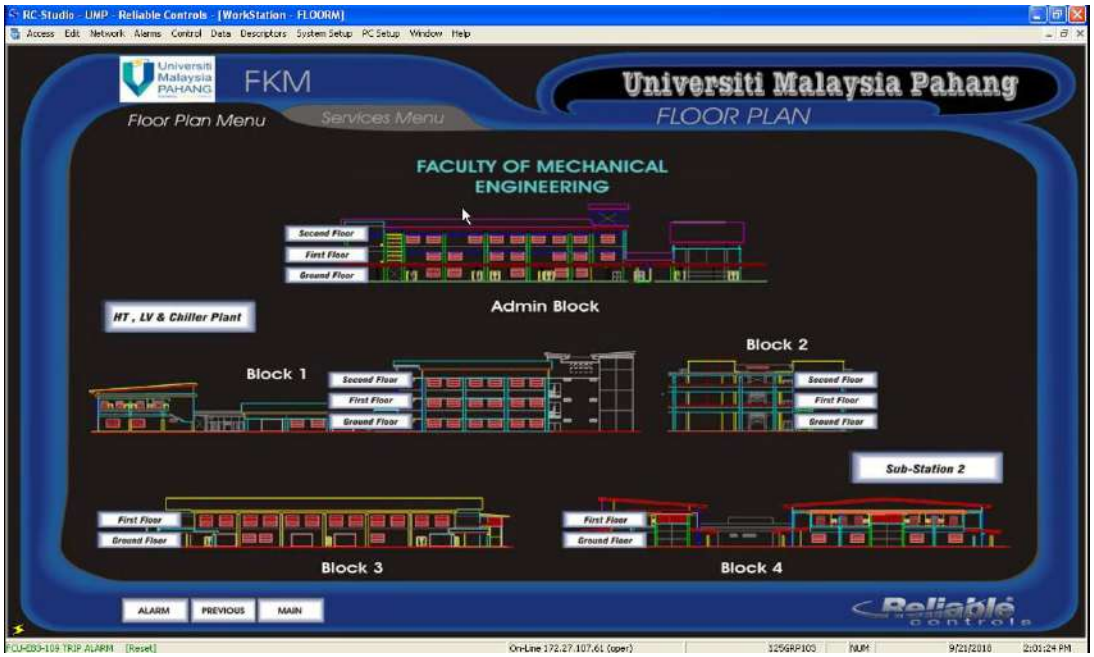


System layout

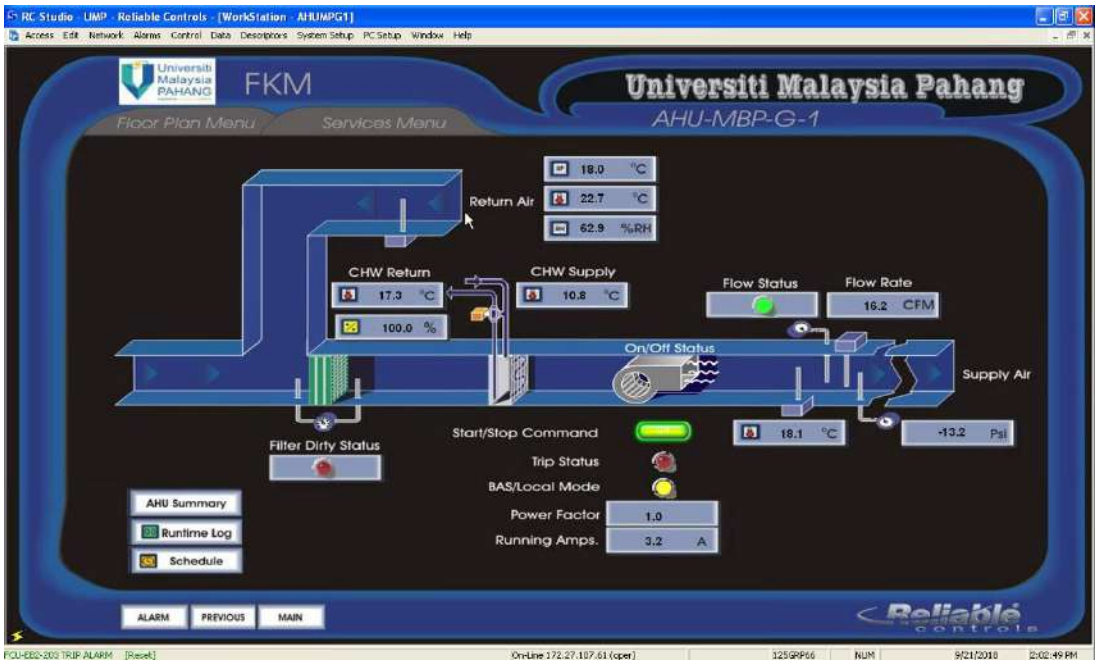


System layout

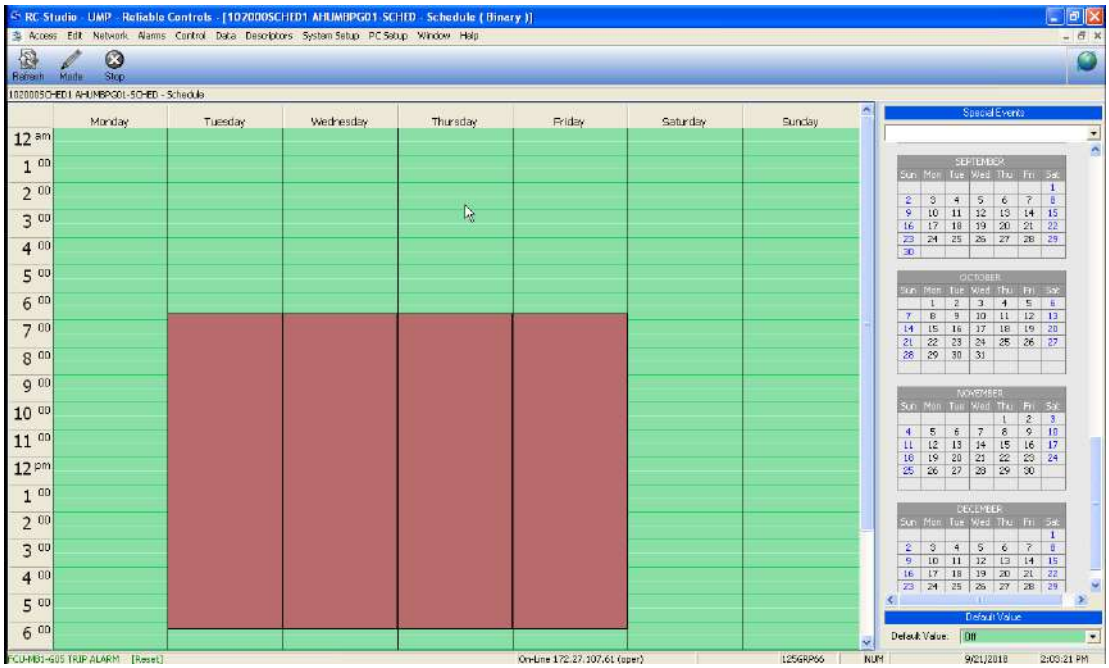
Building Automated System for FKEE & FKM



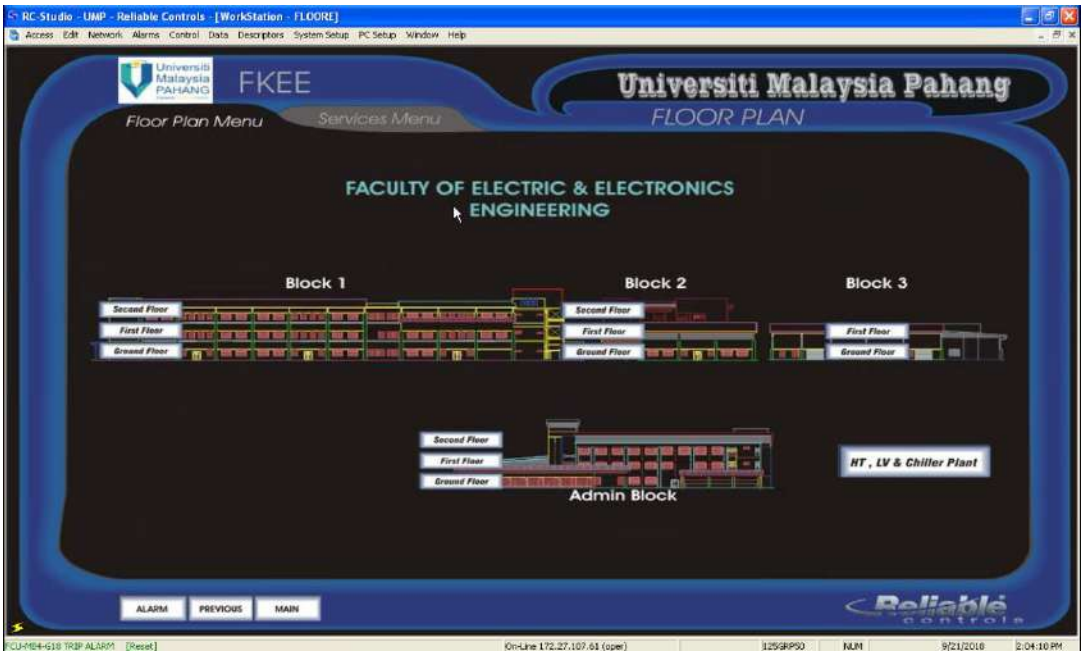
Controller status for FKM



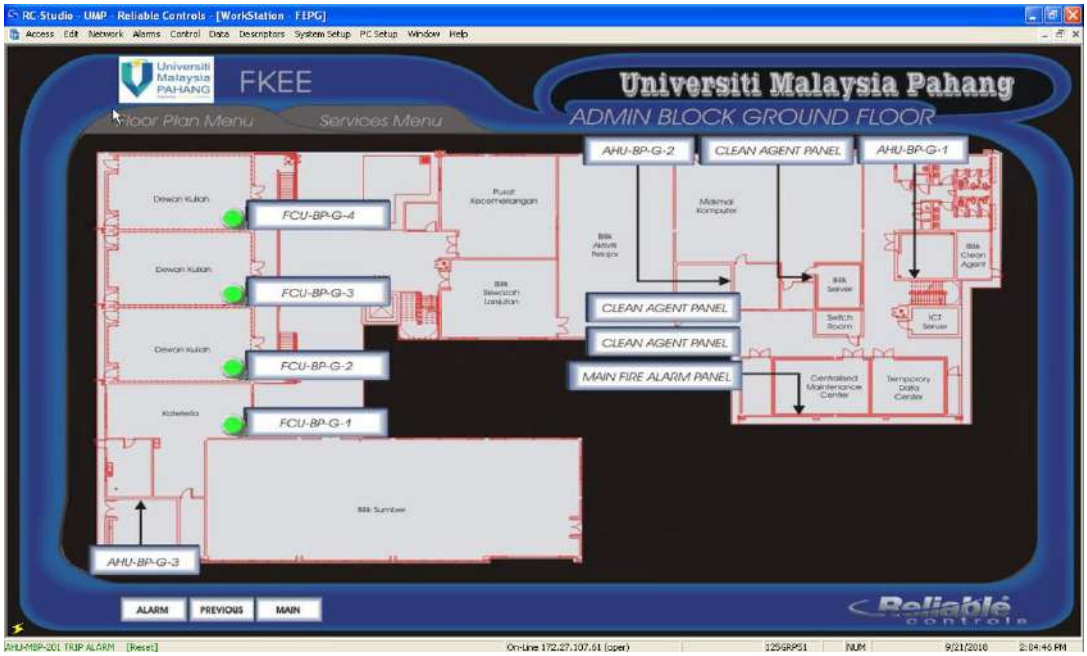
Controller satus for FKM



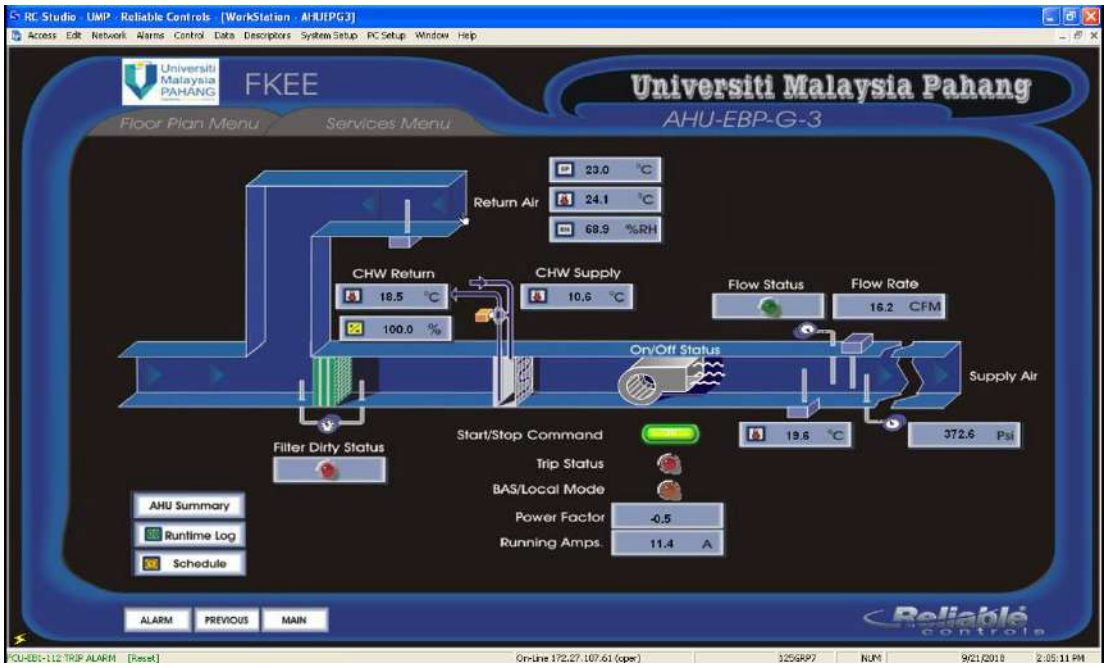
Controller status for FKM – time setting



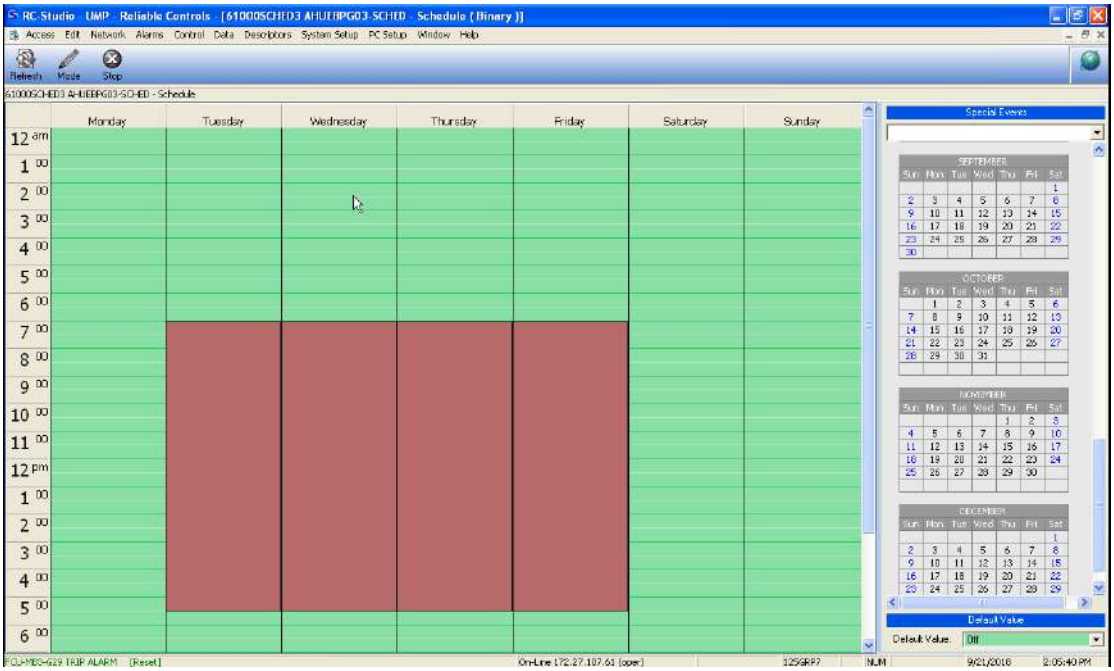
Building Automated System for FKEE



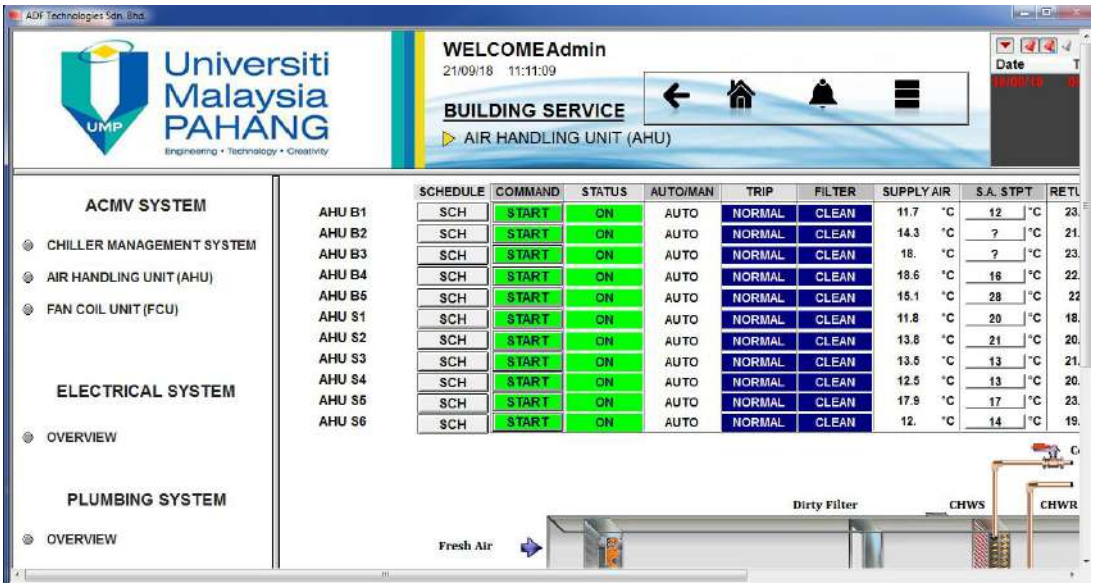
Controller status for FKEE



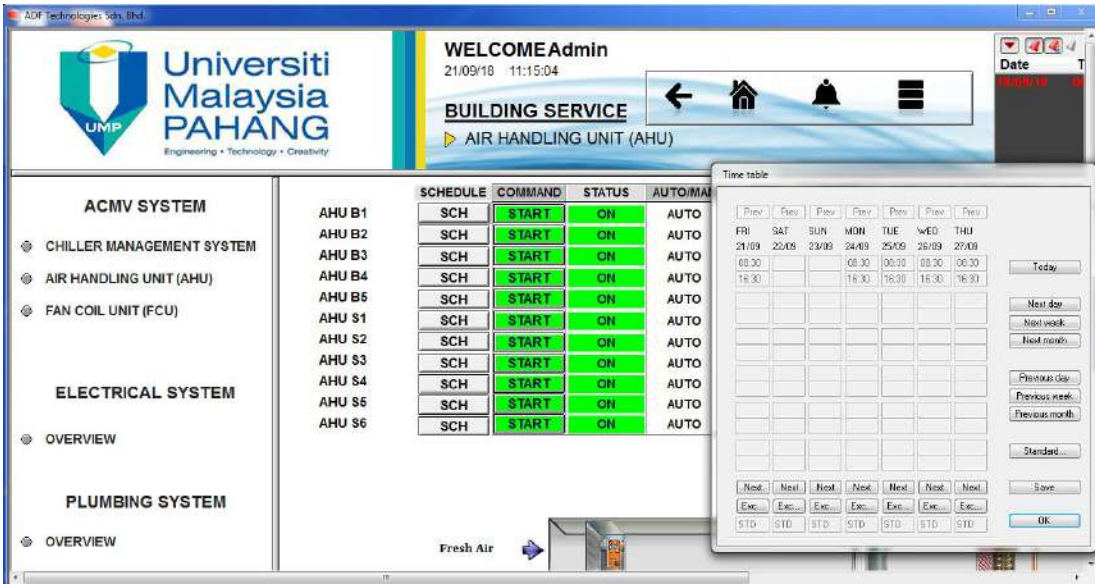
Controller status for FKEE



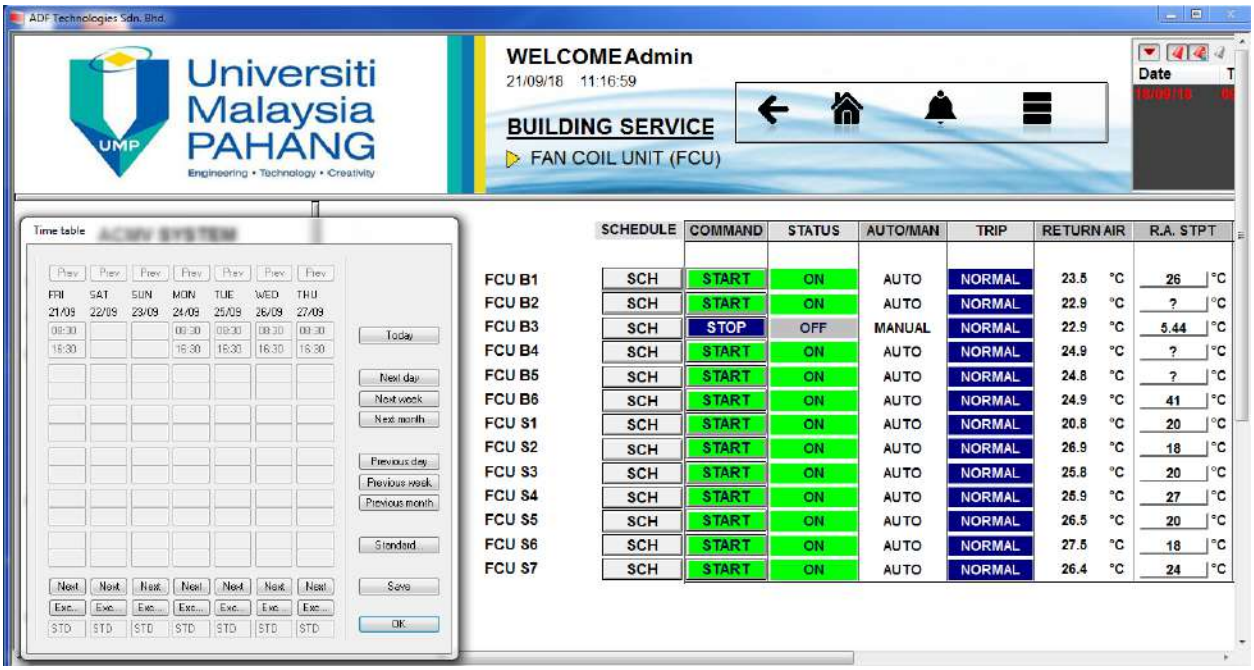
Controller status for FKEE – Time setting



Building Automated System for Chancellery Tun Abdul Razak



Controller status – time setting for AHU



Controller status – time setting for FCU

Rainwater harvesting for plants irrigation.

99.14% in UMP using Energy Efficiency Appliances.