

Home & Building Automation Project 2

MC Guys

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Central Control Unit

- Offering a whole range of control, monitoring and configuration options
- Operation via PC or tablet with WebUI
- The configuration and operation
- Complex control tasks and individual logic functions can be realised



Central Control Unit Panel

- Display for device status or system variables
- Display of home status- e.g. present/absent, alarm active/inactive....
- 4 states LED display(red, green, orange, and off)
- 3 buttons for activation of up to 16 programs
- Eco mode switches LED display automatically off





Central Control Unit Panel - Amounts

Domain	Number
Heating + Climate	4
Lighting	1
Security	1
Entertainment	1

Central Control Unit - Location




ground floor plan

• CCU panel



first floor plan



Central Control Unit - Shopping List & Costs

Domain	Quantity	Price / unit	Price Total
CCU Display	7	77,90 €	545,30 €
CCU	1	80,90 €	80,90 €
			626,20 €

Price source: <https://www.cyberport.at/>

Heating & Climate - Functionalities

- Automate temperature regulation
- Automatically open/close windows to get the optimum efficiency
 - Using outdoor and indoor temperature & humidity data
- Adapt temperature regulation when windows/doors are opened
- React to weather situation (rain, snow, ...)
- React to special situations
 - Increased humidity when cooking or bathing



Heating & Climate - Devices

Homematic Wireless Radiator Thermostat

- To control radiators and temperature
- One for each radiator
- Costs about 40€ per unit



Heating & Climate - Devices

Homematic Wireless Room Thermostat

- To control overall room temperature
- One to control each room
- Costs about 50€ per unit



Heating & Climate - Devices

Homematic Wireless Window Drive WinMatic

- To detect open windows and doors
- Automatically close and open windows
- React by changing heating
- Costs about 350€ per unit



Heating & Climate - Devices

Homematic Wireless Temperature/Humidity Sensor, indoor

- To gain information about indoor climate
- Relevant for fast changing climates (kitchen, bath)
- React by changing heating and opening/closing windows
- Costs about 50€ per unit



Heating & Climate - Devices

Homematic Wireless Temperature/Humidity Sensor, outdoor

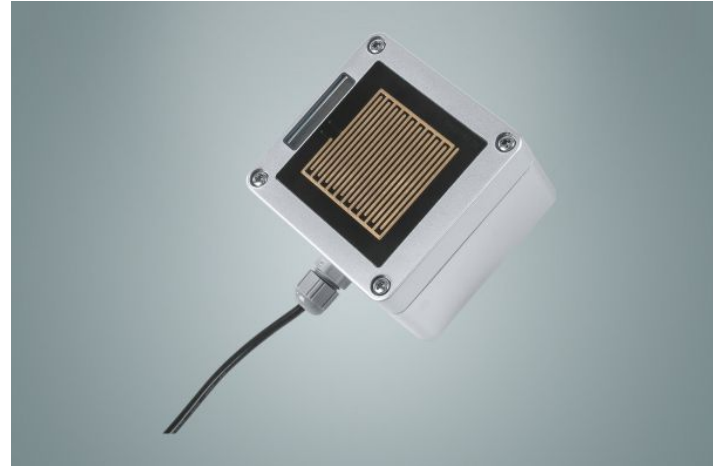
- To gain information about outdoor climate
- React by changing heating and opening/closing windows
- Costs about 50€ per unit



Heating & Climate - Devices

Homematic Wireless Rain Sensor

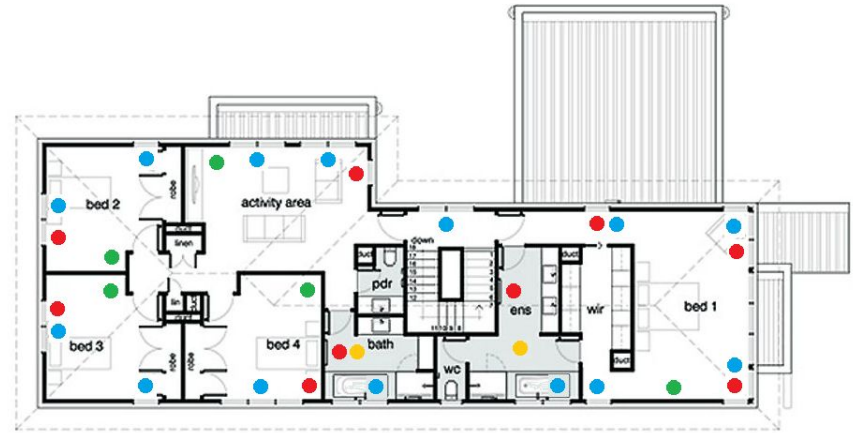
- To detect rain
- React by closing windows
- Costs about 90€ per unit



Heating & Climate - Floor plan



ground floor plan



first floor plan

- Radiator Thermostat
- Room Thermostat
- Window Drive
- Temperature/Humidity Sensor
- Rain Sensor



Heating & Climate - Shopping List & Costs

Product	Quantity	Price / unit	Price Total
Radiator Thermostat	16	40 €	640 €
Room Thermostat	8	50 €	400 €
Window Drive	26	350 €	9.100 €
Temperature/Humidity Sensor, indoor	3	50 €	150 €
Temperature/Humidity Sensor, outdoor	1	50 €	50 €
Rain Sensor	1	90 €	90 €
			10.430 €

Price source: <https://www.cyberport.at/>

Lighting & Shutter - Functionalities

- Automate lightning control
- Automatically turns lights on/off
- Adapt light regulation based on lightning conditions outside
- React to special and personalized situations
 - watching a movie
 - eating dinner



Lighting & Shutter - Devices

Philips Hue Ambience Pillar

- Light: White
- Dimmable
- Costs about 60 € per unit



Lighting & Shutter - Devices

Philips COL Hue LightStrips+

- Light: Color
- Dimmable
- Flexible
- Costs about 75 € per unit



Lighting & Shutter - Devices

Philips Hue LED Struana

- Light: White
- Dimmable
- Costs about 160 € per unit



Lighting & Shutter - Devices

Philips Hue Beyond

- Light: 2 independent colors
- Dimmable
- Costs about 224 € per unit



Lighting & Shutter - Devices

Osram Endura Mini Spot II

- Light: White
- Not dimmable
- Costs about 60 € per unit





Lighting & Shutter - Devices

Osram Smart+ Gardenpole

- Set with 5 poles
- Light: Color
- Dimmable
- Costs about 70 € per unit



Lighting & Shutter - Devices

HomeMatic Wireless Shutter Actuator

- Suitable for use with standard shutter motors
- Numerous remote controls
- Costs about 60 € per unit



Lighting & Shutter - Devices

HomeMatic Wireless Switch Actuator

- Can easily integrated into existing installations
- Wireless switch for lightning
- Costs about 50 € per unit



Lighting & Shutter - Devices

HomeMatic Wireless Dimm Actuator

- Can easily integrated into existing installations
- Wireless dimm for lightning
- Costs about 60 € per unit



Lighting & Shutter - Floor Plan



ground floor plan



first floor plan

- Spots
- Led Strips
- Desk Lights

- Conventional Lights
- Outdoor Lights
- Shutter Control

Lighting & Shutter - Shopping List & Costs

Product	Quantity	Product	Price / unit	Price Total	Quantity	Product	Price / unit	Price Total	Quantity	Price / unit	Price Total
Philips Hue Bridge	2	Other lights	40€	80€	x	Outdoor light	~ 3.000€	5		64 €	320 €
Philips Spot	38	Shutter Actuator	60€	2.280 €	25	Garden Light (Set)	2.500€	1		72 €	72 €
Philips Led Strip	9	Switch Actuator	75€	675 €	12	Shutter Actuator	50€	25		60 €	2.500€
Philips Conventional Light	20	Dimmer Actuator	160€	3.200 €	24	with Philips Hue	66€				10.447€
Philips Desk Lamp	6	without Philips Hue	220€	1.320€				~ 7.500€			

Security & Surveillance - Functionalities

- Improve sense of security
- Protection against break-ins
- Monitor movement
- Notify in case of break-in or fire



Security & Surveillance - Devices

Homematic IP Smoke Alarm with Q Label - White

- Optical scattered-light smoke alarm
- Battery lifetime of 10 years
- Emergency lighting
- Costs about 60€ per unit



Security & Surveillance - Devices

Homematic IP Passage Sensor with Direction Recognition

- Detection range of approximately 4.5 m
- Register the number of people as well as the passage direction
- Reliable at day and night
- Can be used for triggering an alarm
- Costs about 90€ per unit



Security & Surveillance - Devices

Homematic IP Alarm Siren

- ≥ 90 dB @ 1 m distance
- Red signal LEDs
- Different acoustic signals and the alarm duration
- Tamper contact detects manipulation or unauthorised removal
- Costs about 45€ per unit



Security & Surveillance - Devices

Homematic IP Indoor Motion Detector with Brightness Sensor

- Can be used for triggering alarm functions
- Detection range of up to 12 m
- Costs about 45€ per unit



Security & Surveillance - Devices

Homematic IP Outdoor Motion Detector with Brightness Sensor

- Detection range up to 12 m
- Is able to rotate by 360 °
- Differentiates the light intensity in twilight as well as between sunshine and clouds
- Range of -20 to +55 °C
- Costs about 65€ per unit



Security & Surveillance - Devices

Homematic Wireless Door Lock Actuator

- Can be used on nearly all doors
- Emergency operation for manual opening of doors
- Easy installation without any drilling
- Costs about 150€ per unit



Security & Surveillance - Devices

Homematic IP Access Point

- Communication from the smartphone to all Homematic IP devices
- AES encryption
- Connected via network cable to a standard router
- Comfortable and individual voice control (e.g. via Amazon Alexa or Google Assistant)
- Costs about 45€ per unit



Security & Surveillance - Devices

Homematic IP Wall-mount Remote Control - 6 buttons

- Can be used e.g. for switching lights on and off or for activating and deactivating the eco mode
- Individual labelling of buttons
- Can be used with the Access Point
- Costs about 65€ per unit



Security & Surveillance - Floor Plan




ground floor plan



first floor plan

- Smoke alarm
- Passage sensor
- Alarm siren
- Wall mount remote control
- Motion detector indoor
- Motion detector outdoor
- Access point
- Door lock



Security & Surveillance - Shopping List & Costs

Product	Quantity	Price / unit	Price Total
Homematic IP Smoke Alarm with Q Label	16	60 €	960 €
Homematic IP Access Point	2	45 €	90 €
Homematic IP Passage Sensor with Direction Recognition	2	90 €	180 €
Homematic IP Alarm Siren	2	45 €	90 €
Homematic IP Indoor Motion Detector with Brightness Sensor	9	45 €	405 €
Homematic IP Outdoor Motion Detector with Brightness Sensor	12	65 €	780 €
Homematic IP Wall-mount Remote Control - 6 buttons	2	65 €	130 €
Homematic Wireless Door Lock	1	150 €	150 €
Price source: https://www.amazon.com/			2785 €

Entertainment - Functionalities

- Voice Control
- Increase Mood
- Play favourite Movie / Song



Entertainment - Devices

Sony XBR55A1E 4K Ultra HD Smart BRAVIA OLED TV

- Works with Alexa Voice Control
- Android TV
- 360 degree of sophistication



Entertainment - Devices

SONOS ONE

- Integrated Amazons Alexa
- Control Speaker over WLAN
- Cost per Unit 229 €



Entertainment - Devices

SONOS Playbase

- Separate bass, treble and volume control
- Streaming over WLAN
- Cost per Unit 799 €



Entertainment - Devices

SONOS SUB

- Separate bass level control
- Streaming over WLAN
- Cost per Unit 799 €



Entertainment - Floor Plan



ground floor plan



first floor plan

- TV
- Sonos One
- Sonos Playbase
- Sonos Sub



Entertainment - Shopping List & Costs

Product	Quantity	Price / unit	Price Total
Sony XBR55A1E 55-Inch 4K Ultra HD Smart BRAVIA OLED TV	1	2500 €	2.500 €
Sony XBR55A1E 65-Inch 4K Ultra HD Smart BRAVIA OLED TV	1	3200 €	3.200 €
Sony XBR55A1E 77-Inch 4K Ultra HD Smart BRAVIA OLED TV	1	13000 €	13.000 €
Sonos One	14	229 €	3.206 €
Sonos Playbase	3	799 €	2.397 €
Sonos Sub	3	799 €	2.397 €
			26.700 €

Price source: <https://www.amazon.com/> , <https://sonos.com/>



Tasks and Responsibilities

Name	Task	Installation time
Denis Sivak	Heating & Climate	35h
Bernhard Hiesl	Lighting & Shutter	40h
Oliver Barth	Security & Surveillance	40h
Manuel Mühlshuster	Entertainment	6h
Piotr Swietek	Central Control Unit	16h
TOTAL		137h * 80€ = 10.960€