

# Report

## My objectives

I will describe the five main components of several of the hotel systems.

By “five main components”, I mean:

1. Input
2. Process
3. Output
4. Storage
5. Network

I will describe the software used for the hotel systems.

I will show how the systems are linked together.

I will describe the main hardware used by the hotel.

## Introduction

The hotel has given me a list of software it uses. I will include this list later on in my report.

The hotel is made up of 170 rooms of which 150 are on 3 floors of 50 and 1 floor of 20. each floor has the following systems:

- Key system
- Environment system
- VOD, telephone
- Internet access
- Minibar

## Key system

When a customer checks in at the hotel reception, the receptionist gives them a key. The key is the same size as a credit card and is made out of plastic with a magnetic strip. This strip stores the correct code needed to release the lock. The computer into which you are swiping the card is of a very low voltage which prevents any danger to the guest. If it was a computer of standard voltage there is a risk of electric shock. The computer sends the code to the server via loop areal.

**Input 1** = The code is sent to the computer in the lock by the building management server.

**Input 2** = the key card is put into the lock

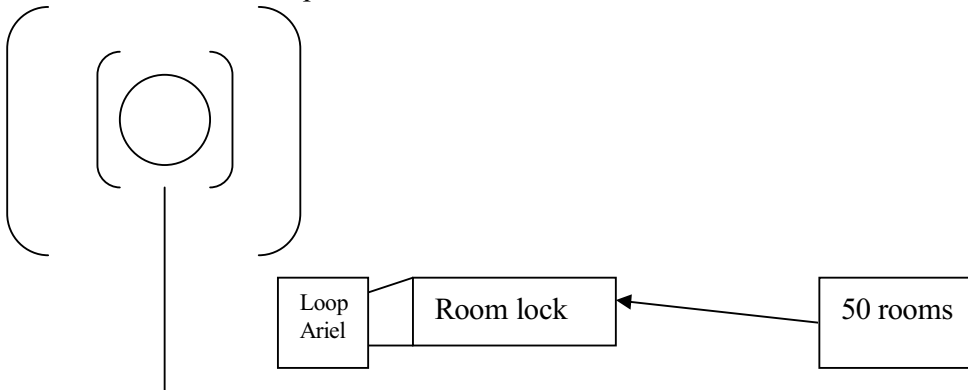
**Process** = the codes are compared

**Outputs** = if the codes from the card and lock match, the lock will open, if they don't match then the door will remain closed

**Storage** = the code is sent onto the flash memory. You could consider using a small hard disc or volatile memory. But volatile memory wouldn't work because as soon as

the door was opened it would lose all its memory. A hard disc wouldn't work because the door banging would damage the disc causing it to stop working  
 However flash memory doesn't require any power. Also it doesn't have any parts, so if the door was to bang then nothing would break.

**Network** = the loop aerial sends the code via wireless connection to the lock



### Environment System

In all the rooms there is a thermometer to record current temperature, a thermostat to set a desired temperature, a key card holder where you put your card as a switch to activate the environment system and to show whether the room is occupied or empty, servos to control the heating and the cooling and monitors to record whether or not equipment is working fine or if there is a problem.

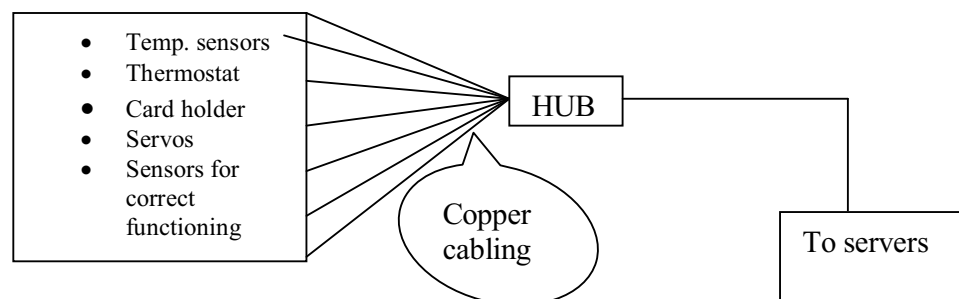
Input = Current temperature & input => desired temperature & input => occupied or vacant

Process 1 = if room is occupied the system becomes active, if it is empty heating and cooling is turned off this helps the hotel as it saves on the electricity bill by.....

Process 2 = compare desired temp with current temp

Process 3 = If the room is too hot, heating is turned off and cooling is turned on; if too cold, heating on and cooling off.

Output = signals to the servos



The rooms are organised in two groups of 25. The equipment in rooms are connected to a hub the hub is better then a switch because it can.....

The hub is connected to the building server on the ground floor

Optic fibre cables can handle a lot more data then copper cables.

### Minibar system

Input 1 = the presence sensor can tell whether there is an item missing or not

Input 2 = there is another sensor to see if the minibar is working

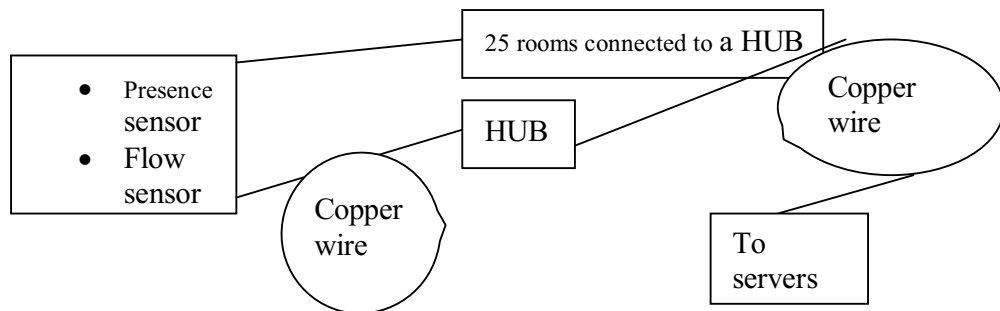
Process 1 = presence sensor allows 10 seconds for the item taken to be replaced

Process 2 = Minibar breakdown is detected by the sensor

Output 1 = lack of presence sent to Building Systems server

Output 2 = minibar breakdown warning sent to Building Systems server

Network There are 50 rooms on a floor. But they are split up in a way which is like 25 each. They are all connected to a hub.



### EVALUATIVE COMMENT HUB V SWITCH

Hubs connected to Buildings system server on ground floor.

*Cabling is copper EVALUATIVE COMMENT COPPER V OPTICAL*

*EVALUATIVE comment on how the minibar system might be defeated? How likely?*

*Would it be worth a more costly minibar system to reduce defeats?*

### Telephone service

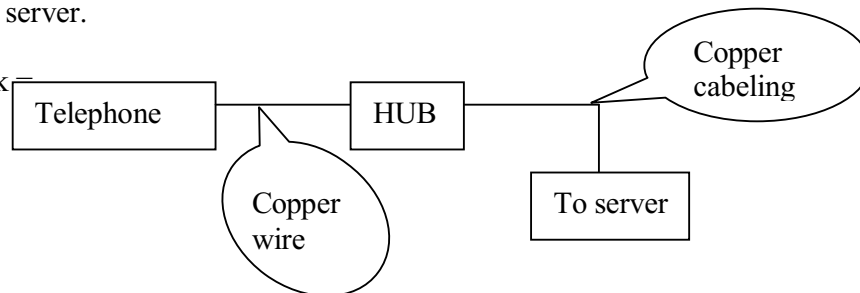
The telephone systems equipment is provided by Alcatel, a French telephone system. Each room has its own telephone.

Input = the time it is on and off

Process = the time the telephone has been on

Output = Itemised billing information is sent by the telephone gear to the Billing systems server.

Network =



The rooms are organised into groups of 25. the equipment in the rooms is connected to a specialist hub provided by Alcatel.

Hubs are connected to the main telephone gear on the ground floor.  
The system uses copper cabling.

### Video on Demand

The equipment for this system is provided by a company called Infovalue Computing Inc.

Each room has its own television and processing box

Background: DVD disk typically holds 4.7 Gigabytes of data.

Assume 3 GB required for 1 hour of film.

$3 \text{ GB} = 8 \times 3 \times 10^9 \text{ bits}$ .

$1 \text{ hour} = 36 \times 10^2 \text{ seconds}$

Speed of data transfer required =  $8 \times 3 \times 10^9 \text{ bits}$  divided by  $36 \times 10^2 \text{ seconds}$

Approx speed indicated = 7 Mbit/s

In real life, typical video transfer speed is 3.6 Mbit/s

Input = the guest selects a film

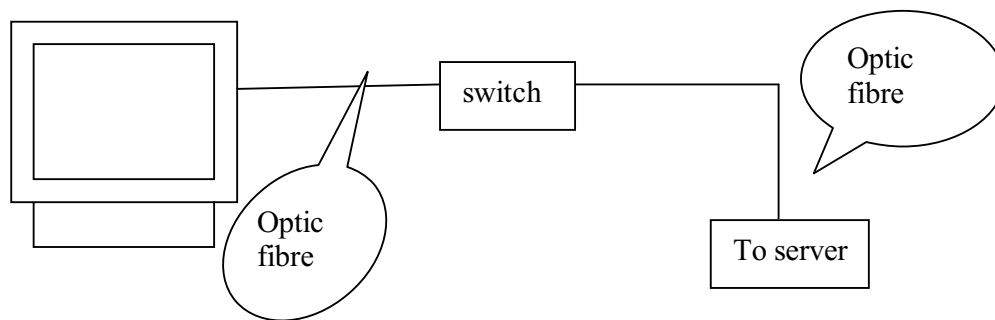
Process = Film is streamed to TV

Output1 = Film is viewed

Output 2 = Billing instructions are sent to server

Storage = RAM memory because it is the fastest memory but when the power is switched off the memory is erased.

Network =



Rooms are in two groups of 25.

The equipment in each room is connected to a fast switch so that the memory can be transferred as quickly as possible

Switch is connected to equipment on the ground floor.

Cabling from TV to the switch is copper.

Cabling from switch to ground floor is fibre optic because it is fast and wires close together do not interfere with each other.

