

SRR

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Making Facility Management more intelligent and efficient.

Systems
Requirements
Review

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1. Identification of opportunity

The traditional HVAC system needs an improvement to optimize users' experience and make maintainers' work efficient.

For the HVAC users, a comfortable customized indoor environment is needed. The HVAC control system should be intelligent enough to make the setting process easy. There should be more methods for system configuration except fixed control panel. Using browser, apps to realize remote control has become a trend. Also for the configuration strategies, more factors such as time, weather should be added. In order to make the system work automatically, some algorithms can be designed to adjust the indoor environment.

For the HVAC maintainers, they always have responsibility to concern about the electricity cost of HVAC system. When some problem happens to the HVAC system, they often spend much more time on troubleshooting rather than fixing the problem. So a troubleshooting mechanism will help them a lot. Now FM companies often maintain lots of buildings at one time, if most of their maintenance and monitor about building can be down online through a remote control, their work and cost will be reduced a lot.

These problems about HVAC control system has existed for a long time. Now new technology gives us more possibility to solve them.

2. SMART Goal Definition

The goal of our project is to design a smart control system for HVAC services in facilities, to make it more efficient and easier to use, by 1st May 2016.

3. Strategy for making stakeholder requirements

After identifying the opportunity, the group started identifying some stakeholders that could be involved with the systems lifecycle. The most important stakeholders were then filtered out and can be seen in table 5.1. For finding the user requirement the group conducted a survey. The survey had 63 replies and can be found in the document “survey analysis”. The group also tried to contact facility maintainers to find out requirements from their point of view, but was unsuccessful with getting replies from them.

4. Description of Stakeholders

The following stakeholders were found and they were ranked in the following order:

1. Users
2. Facility manager
3. HVAC vendor
3. Government

4.1. Users

The main users have been identified as a person working in an office complex with a personal office room. But other users could also be users of bigger rooms, for example classroom and meeting rooms.

4.2. Facility manager

The facility manager is the person responsible for the management of services and processes that support the core business of the organization. They try to make the most suitable working environment for its employees and their activities. Their focus is to improve efficiency, by reducing operating costs while increasing the productivity. In a HVAC system life-cycle the facility manager would be interested in the installment, operation, maintaining and decommissioning.

4.3. HVAC vendor

The HVAC vendor are described as the one providing the existing HVAC components (actuators, fans, ducts, heater)

4.4. Government

The government are described as the one providing regulations and laws that the system has to follow.

5. Stakeholders requirements

The following stakeholders and their requirements were developed by the group when using the strategy mentioned above.

Stakeholder	Requirement	Trace
User	Being able to track the temperature, humidity and amount of CO2 in the air.	User survey
	Being able to change the temperature as they like accordingly as well as the humidity, and indoor air quality	User survey
	Easy use	
	Accessible	
Facility Manager	Long operational life	
	Easy maintenance	
	Easy implementation	
	Energy saving	
HVAC vendor	Easy deployment	
	Compatible with their HVAC equipment	
Government	Meet regulations set by government	

Table 5.1 Stakeholders requirements

6. Analysis

This part of the document is an evaluation of the stakeholders requirements and the methods that were used to get them.

6.1. Identification of stakeholders

6.1.1. Limitations

Now there's only one stakeholder for all of the users, and that might lead to problems later in the process.

6.1.2. Possible improvement

One of the possible improvements could be to separate the user stakeholder into a more specified group of peoples, then it would be clearer who the requirements come from.

6.2. Traceability of requirements

6.2.1. Limitations

From the traceability of the requirements only two of the stakeholder requirements can be traced to a document that is supporting it. That is because the group was not able to get any feedback from stakeholders that would be involved in the installment and maintenance of the system.

6.2.2. Possible improvement

One of the possible improvements is that it might have been possible to get feedback from maintainers if the group were more aggressive with their requests.

6.3. Other comments

In a normal business project it might have been easier to get feedback from the stakeholders, at least for the maintaining and manufacturing part. The group had issues getting feedback from stakeholders, and that hindered us from making good requirements about some of the stakeholders. Another point is that the group had a lack of knowledge about how to go forward in making the requirements, and it resulted in a poor survey which influenced the requirements.

7. Management plan

The group have made a document called "project management" which deals with tasks, calendar, milestones, challenges, responsibilities and cost.