Networked Embedded Systems - Project Idea
-Smart Green Home for students-

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Imagine you are a university student and you live far away from your family. You live in an unknown town and no one cares about you. You have to wash the dishes yourself and you have to take care about your clothes. In addition your mother gave you same very beautiful plants. Now you want to go to your holidays and travel around Europe for some weeks and you have no idea how to pour your very beautiful plants during this time. Your neighbor is not very friendly and your mother lives in another town.... :-(

Than you need the Smart Green Home for students!

With the *Smart Green Home for Students* you can leave your plants alone for several weeks. The *Smart Green Home for Students* controls the pouring of every plant in your flat perfectly. The pouring works complete automatically and of course wireless.
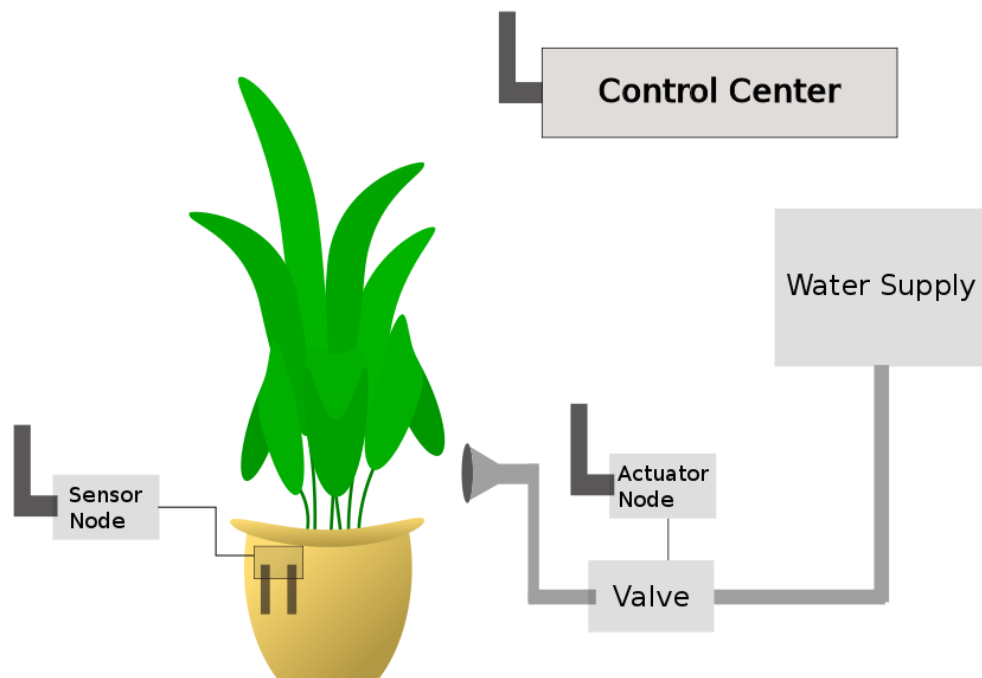

Figure 1: Very cool Picture of our Smart green house

As you can see in Figure 1 the idea of the system is quite easy. With several sensors the environment will be monitored. The result of the sensors decides when its time to pour the plants. The system works wireless, so it is not necessary to install cables inside your flat. That makes the system very flexible and user-friendly.

Technical Background

Three values are critical for open or close the water valve.

Temperature:
If you forgot to close the window of your room during winter maybe its to cold to pour the plants. The water would freeze immediately and the pouring would be nonsense. By the way: The plants would die anyhow.

Air humidity:
If the air humidity is too high it is not necessary to pour some kind of plants. Than the air humidity is sufficient to feed the plants.

Soil humidity:
The most important factor: If the soil humidity is it too low the valve opens and the plant gets water.

The senders inform the control center when their values (states) have changed. The control center fetches the data (temperature, air humidity and soil humidity) and decides whether the plants need new water. In the case of pouring the control center instructs the actuator node to open the valve for a certain time. As we have cheap equipment we can't adjust the water throughput, that's why the control center needs to calculate the time how long the valve should be open.