digiquest's Origin

We are students of the Universität Bremen, studying computer science. Within this study course we have to attend to a project which lasts two years. This project is called Nom@d and it is primarily concerned with mobile communication and mobile computing.

Nom@d is a cooperation between the department of electrical engineering and the department of computer science at the Universität Bremen.

We are 23 students in the project and are working on four (very) different tasks. One group develops an adhoc tool for wlan, one group builds an application for location based services and another group develops a manager for all network interfaces one might have.

Our group cooperates with a publishing company, the Heinrich Bauer Verlagsgruppe (HBV) in Hamburg. The HBV is one of the biggest magazine publisher in Europe. They sell their magazines in supermarkets, petrol stations or many other points of sale (POS). For this POS they have a team of sales representatives to look after the correct placement of the magazines at the POS. This sales representatives collect data on paper and have to input it in a digital format by hand to make it analysable. This makes the process slow, error fragile an expensive. To make this faster, more secure and cheaper by removing the paper out of the process, digiquest was born.

1. Original NOM@D Project Proposal

> **Note:**
> This is the original proposal describing the Nom@d project. JFYI.

- Global Roaming: Mobility between homogeneous, heterogeneous as well as ad hoc networks
- Access Freedom: Ability to switch between devices while communicating
- Service Location: Locating resources in the virtual and in the physical world

The purpose of project NOM@D is to investigate new protocols and services that will make the mobile users of the future independent of individual providers, access technologies or devices and enable them to utilise any device in their disposal in order to locate resources in the physical and the virtual world.

Significant technological advances are taking place in recent years in the areas of palm-sized

computers and wireless communications. Meanwhile, the range of available access technologies has continued to grow accompanied by the rise of a plethora of access devices. Consequently, a technology that allows the integration of available heterogeneous and homogenous networks into a single platform while at the same time remaining independent of individual access devices (i.e. mobile phone, PC) will gain importance.

In such environments with the potential for true global roaming, communication services will further approach users providing solutions to problems of every day life. Specifically, new services will emerge that will enable users to locate resources in the physical and the virtual world.

The most fundamental requirement of NOM@D networks is transparent operation. That is, users should be able to roam between providers and access technologies without further customisation and without witnessing any interruption in their communications. Moreover, users should be able to place through the system abstract, elaborate resource location request that will be transparently broken down into a number of basic requests that are in turn resolved.

Within the NOM@D project, participants will be able to work with infrastructure hardware for various wireless communication technologies, including IEEE 802.11 and GSM. Moreover, various access devices will be made available. During the project, participants will have to get acquainted with each technology and to identify their individual properties. This will play an important role when integrating all technologies into a single platform.

Within the scope of the project is also to investigate dynamic infrastructureless networks, namely ad hoc networks. Such organisations are based on a mutual convention that enables them to share resources in order to form a dynamic infrastructure. It is considered that ad hoc networks will maintain a prominent position in the future communications landscape. Furthermore, participants will be required to investigate how existing Internet standards can be expanded in order to support device mobility, even during communications. Finally, given an integrated network platform, it will be investigated how resource location services can be realised. This will be combined with positioning system information thus providing some correspondence with the physical world. For the investigation of the resource location services, participants will have to develop considerations for the location of resources in the physical as well as virtual world.