

# FINAL YEAR PROJECTS

If you are interested in getting a head-start and plan to work on your final year projects, following are a few ideas. Also, if you have an idea and would like to work with me, feel free to contact me for and discuss the details.

## **Anti-theft/surveillance/security solution for hand-held devices or miscellaneous equipment**

The idea is to implement an indoors wireless monitoring/surveillance/security system that tracks certain objects of interest (laptops, projectors, or even people, etc) using a combination of commercial off the shelf (COTS) passive and active sensors/actuators (e.g., RFIDs and wireless motorized cameras). Users should be able to register continuous queries that express what objects need to be monitored and what events are deemed "interesting" (so that alerts can be sent to appropriate parties).

## **Software solution for an RF based motion detector such as a speed trap**

The idea is to detect the direction of motion, speed, acceleration and size of a moving object e.g. a car using a Doppler/Carrier-wave Radar. The reflected signal from the CW radar shall be available for which a DSP based solution or an FPGA based solution is to be provided. Matlab shall be used for testing and verification purposes.

## **Computer Network Performance Forecasting [MAGGIE]**

The prediction of network performance will greatly aid large scale data replication applications. However, such techniques are currently not very well understood. This project will investigate, report upon and implement one technique to provide reliable forecasts of network performance based upon past performance.

## **Federation Techniques for Network Data Analysis [MAGGIE]**

The sharing of network performance data is vital in understanding the network as a whole. Projects such as per-SONAR and Internet2 pipes provide in-depth router performance statistics, the understanding and correlation of which is of great value. Here the work will focus on developing such technologies in accordance to the work of IEPM to aid the effective sharing and analysis of the data.

More ideas to follow ...

NUST INSTITUTE OF INFORMATION TECHNOLOGY

**Contact:** Umar Kalim

R # 15, AB # 3, St # 8, Phone: 9280439 x 134

E-mail: [umar.kalim@niit.edu.pk](mailto:umar.kalim@niit.edu.pk)



**Determining and making arrangements for the required equipment shall be my responsibility**

The people who get on in this world are the people who get up and look for the circumstances they want and if they can't find them, [they] make them — George Bernard Shaw