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ENHANCING QUALITY RESEARCH &

# INNOVATION

for

**SOCIETAL**

**DEVELOPMENT**





**P-117 Vision-based hand detecting and tracking for automatic sign language translator**

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Vision-based hand detecting and tracking is an important problem in Sign language definition, since hand motions and gestures are used in more natural ways. A number of solutions have been proposed in the current issue, but the problem is still far from being solved since hand exhibits significant amounts of articulation and orientations that cause difficulties in the detection term. To further exasperate this problem, sign language requires that the hand tracking perform in real-time.

This project presents the implementation of real-time hand detecting and tracking that can be used for initiating the system for sign language recognition. By using Haar-like features and ad-boost algorithms for detecting the hand, the system shows a high accuracy for detecting the hand. For motion estimation, we use kalman filter as a pixel-recursive estimator. The system uses one low-cost web camera mounted in front the work area and facing the signer to track the hand in a real time.

**P-121 National Disaster Management System**

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Abstract: In order to minimize the effect on disaster, in term of environment damaging and number of casualties, an integrated disaster management system is required. The system should be designed to having capabilities of to monitor, control, and manage a disaster, and recover impact of disaster as well. The proposed system is centralized and integrated to cover whole area of a country, which sophisticated intranet based. The objectives of the system are the first, to prevent disaster; the second, to save and minimize the casualties in case of disaster is occurred; the third, to minimize damaging effect in properties and environment. The national disaster management system covers model of prevention, preparation, responding / mitigation, recovery of the disaster.

**P-122 One-to-many reversible mapping for IPv6 address management**

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IPv6 is the successor of the current IPv4 protocol stack that is expected to soon depleted due to limited number of IP addresses. Meanwhile, in enterprise network the network visibility is of primary concern to the network administrator.

Network visibility means knowledge of who are on the network, what they are doing and what kind of traffic they are generating. This usually requires sophisticated tools and requires a lot of manual intervention in traditional IPv4 network because of the addressing scheme used. It is the very first step to secure the enterprise network.

IPv6 also offers many additional features that are not by default available in IPv4 towards achieving more secure, more efficient network in the future. IPv6 has virtually unlimited address space that can be exploited to improve network visibility in a simpler manner than the existing one.

This research proposes a mapping scheme between the user space and the IPv6 address space which allow one-to-many mapping but yet reversible. This reversibility allows the user to be given a group of IPv6 addresses for his exclusive usage, to protect his privacy/anonymity while allowing the system to achieve network visibility by identifying the different IPv6 addresses owner to know who the users (ID) are, what they are doing and what kind of traffic they are generating.

We have implemented the proposed mechanism in one DHCPv6 implementation and verified the