Abstracts

Title: Detection of Vehicles with Monolithic Classifier vis-à-vis a Boosted Cascaded Classifier
Presenter: Shehan Fernando

Abstract **-** This paper describes the comparison of accuracy and performance of two machine learning approaches for visual object detection and tracking vehicles, from an on-road image sequence. The first is a neural network based approach. Multi resolution technique based on Haar basis functions was used to obtain an image in different scales. Multilayer feed forward neural network was used as the classifier and Principle Component Analysis (PCA) technique was used as a dimension reduction technique to make the classification process much more efficient. The second approach is based on boosting which also yields very good detection rates. In general, boosting is one of the most important developments in classification methodology. It works by sequentially applying a classification algorithm to reweighed training data, followed by taking a weighted majority vote of the sequence of classifiers thus produced.

Title: A new AC/DC converter with Switched Capacitor Mode for Laptop Computer
Presenter: C J Baekchangjong

Abstract **-** This paper presents the design and analysis of a switched-capacitor (SC) step-down ac/dc converter for laptop computer. The converter not only exhibits all advantages of conventional SC converters, but also features good output regulations and high power density. It is achieved by paralleling topology and operating multi switching. This design will be promising for laptop computer of small size and light weight. The result obtained by the computer simulation and practical circuit experiment.

Title: GPS / INS integration algorithm for fast moving objects with small flying time.
Presenter: T.D.K Dharmapriya

Abstract **–** Estimating the position of moving object in three dimensional spaces is an important process. Performances in the object's navigation and propulsion system heavily depend upon the position estimation. GPS system widely used as global solution for object tracking and position estimating. GPS has the advantage of non accumulative error behavior but lower resolution and low frequency of updating can be introduced as drawbacks. Above mentioned drawbacks popup critical issues when GPS system use to estimate position in fast moving small objects. Inertial Navigation System (INS) has the unique characteristics of high frequency position estimating with much higher resolution, but Inertial Navigation System contains cumulative error propagation behavior with time. Use of high quality inertial measurement units can use to inbound the error accumulation to reasonable accuracy but cost and none availability of sensors make implementation of such system unfeasible. This research paper address a solution for estimating position more accurately and dependably by integrating estimated position from GPS receiver and Inertial Navigation System which used low cost inertial measurement devises.