Foreword and Editorial

International Journal of Smart Home

We are very happy to publish this issue of an International Journal of Smart Home by Science & Engineering Research Support soCiety.

This issue contains 3 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The paper "Imaging Monocular Vision Localization and Application in Smart Home" models a plane motion with two-dimensional motion parameters to be solved for the plane motion, which simplifies the essential matrix model, parameters and its constraints greatly, and enhances the independence of model parameters. In order to enhance the estimation accuracy of plane motion, the paper combines Kalman filter method for localization estimation. A initial localization estimation is based on the simplified plane motion model with corresponding points projecting in two viewpoint images of a 3D point, and nonlinear optimization localization estimation is based on distance minimization criterion to iteration, more accurate can be got. For the stochastic process error in the localization estimation of sequences images, filtering localization estimation is based on Kalman filter to smooth error.

The aim of the research entitled "Preliminary Evaluation of Temperature Performance Using Empirical Eco-Friendly Approach in Reducing Energy Consumption" is to quantify the percentage (%) of reduction for indoor temperature by emulating a modelled house surrounded by plant in comparison to an identical model without any encircled plants. The motivation behind this study is to identify possible ecological means of passive cooling. It is a fact that there is a huge increase of air-conditioning cooling system usage by consumers in order to keep the temperature down. Air-conditioner can emit over a half billion ton of carbon dioxide into atmosphere, thus causing global warming to the earth. In our research, they hypothesize that, the trees manage to reduce the indoor temperature of a house through the evaporation process and shading. The studies measure the temperature reading using a programmable microprocessor acting as the temperature sensor.

In this paper "Networked Video Smoke and Fire Monitoring System Based on DM642 and i.MX27", a networked video smoke and fire detector based on TMS320DM642 and i.MX27 is designed. The design of the system hardware, software platform and detection algorithm will be introduced. In order to improve the accuracy of smoke detection and reduce the false alarm rate, color, energy and structural similarity metric algorithm is organically combined in the detection algorithm. Flame detection uses dual band of infrared and visible light. Through the double determination of infrared and visible light, compared with the general image processing based flame recognition, the accuracy and stability of flame detection are improved. Smoke and fire detection program is developed on TMS320DM642 platform and video network transmission is achieved by i.MX27. The system has a good performance in different environments. It could well avoid disturbance of light and moving objects. The system has high real-time, quasi certainly and stability.

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