Vasavi College of Engineering

Ibrahimbagh -31

Department of Computer Science & Engineering

A Report on **"Image processing applications in defense applications-feature extraction and object tracking" by** Mr. Bandi Suresh Kumar conducted on 29th march 2014

(Conducted under – Co-curricular Activity)

A Guest lecture on **"Image processing applications in defense applications-feature extraction and object tracking"** was delivered by Mr. Bandi Suresh Kumar, Scientist 'D', IPD/DIIRS, RCI in Image processing division, Hyderabad on 29th march 2014 for the students of M.Tech (CSE) I and II year in P.G seminar Hall, J.C. Bose Block. The speaker Mr. Bandi Suresh kumar has done his M.Tech from IISc Banglore.

The session started with brief introduction to basic of Image Processing. Later the session was taken forward with discussion about image enhancement techniques in spatial domain and frequency domain. The speaker has delivered many real time examples to convey the object tracking and feature extraction concepts. He explained performance evaluation match filter & different issues were also addressed during the session.

Problems in the target tracking are:
Sudden loss of target, Pixel noise, Target going out of focus or going to edge.

Target drift due to:
Target in motion, Size growth of target, Missile dynamics, Aspect angle drawn

Feature extraction techniques:
Laplacian (or) Gausian, Canny edge detection, Haugh transform

Reference model: every frame has to handle the dynamics of the missile and the target.

He also discussed Target tracking algorithm:

1. Co-relation tracker
2. Mean square error tracker.

He discussed basic tracking algorithm steps:
Begin

1. Define destination on the launcher
2. Live image read
3. Compute registration points, co-relation, MSe etc. (between reference image and live image)
4. Confidence measure
5. Registration point acceptable or not? If not go to step 2 else step 6
6. Drift correction
7. Update reference and go to step 2.

End.

He explained and shared the results of the real time system. The session gave the opportunity to students to boost their confidence in image processing and by gaining knowledge on trackers & its techniques used in the challenging fields like defense.