Workshop on 'Computer Vision & Machine Learning with Matlab'

Mentors:

1. Zabir Al Nazi (ECE 2k14)
2. Mamunur Rahaman Mamun (EEE 2k14) [Probable (if there's a session with Python on last day)]
3. Monirul Islam Sojeb (ECE 2k14)

Technical volunteers:

1. Amiotosh Roy Akash (ECE 2k14)
2. Mohammad Galib Khan (||)
3. Hasan Shovon (||)
4. Shovon Dash (||)
5. Kh Shuhat Uddin (||)
6. + 4-5 People

- Technical volunteers will be on spot for any clarification, solving small technical issues. [Minimum 3 technical volunteers]

Volunteers:

- 1 person 'X' who will keep track of all the components provided to the teams.
- 2 persons 'Y', 'Z' who will distribute foods/tokens/help 'X' distribute the components.
- 1 person for managing projector, documents, printed copies etc.
- 2 photographers (if possible)

Number of participants: 30-40 manageable, maximum 45. [There will be some pre-requisite for participant selection as we'll be covering some of the advanced topics]

Who can participate? : 2k15 Batch [We can make exceptions to some of the 2k16 individuals who have worked with Matlab/Python before and has a good concept of programming.]

- Everyone must bring their laptops.

Pre-requisites:

1. Basic concepts of Matlab/Python
2. Good understanding of C or similar programming language.

What will be covered?

Day 1:

- Refresher on Matlab
- Working with matrices, operations

- Loading images, doing basic operations
- Some interactive processing with webcam
- Object Detection (Training, Cascade Classifiers [Each team/participant will train for a specific object and save the model])

Day 2:

1. Brief intro to computer vision, artificial intelligence

[Break]

1. Breaking down our implementation to all the teams as different blocks
2. Custom operation implementation for each team/participant based on their trained model
3. An interactive implementation of ML based solutions

Day 3:

1. Tech-Talk on future of ML, CV and current trends
2. A real time solution merging all ideas [implemented on Raspberry PI]