**Birla Institute of Technology & Science – Pilani**

**Hyderabad Campus**

**1st Semester 2014-15**

**Software for Embedded systems (CS F424/Cs G523)**

**Assignment-5**

Date of posting: 4th Nov 2014 Last date of submission: **21st Nov 2014** Weightage: 15 marks

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**Please note:**

1. This is a team wise activity.
2. Break the task assigned and complete as team work.
3. Mention the portion of the task done by each individual.
4. Plagiarism deserves high penalty.
5. **The date of submission is a hard dead line as this is last assignment. Any submissions after this date will have zero utility.**

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1. Below is the problem discussed in class. Implement the server (CP) using pThreads. Implement the EVM clients as a thread to get stimulus to the server and test complete functionality. The problem is stated again below.

Refrence books:

* POSIX.4: Programming for the Real World by Bill O. Gallmeister, O'Reilly & Associates.
* *PThreads Primer, A Guide to Multithreaded Programming, Bil Lewis, Daniel J. Berg, Prent. hall*



There are 255 EVMs which have to be connected to a central processing unit (CP).

CP holds the IDs of voters, their thumb signatures and voted option.

Communicates with EVMs through messages.

Role of EVM:

* + When user places thumb, EVM generates a signature.
  + Sends the signature to CP.
  + Receives the assertion/negation message sent by CP. CP asserts if the signature is correct and the user has not voted. CP negates otherwise.
  + Glows ‘select one from right” and when user selects one option, it prevalidates (i.e one option is kept pressed for 5 sec) and sends the selection to CP.
  + Receives ACK sent by CP in response to EVMs message.
  + EVM glows “done!” and ready to take next user.

Role of CP:

* + Maintains IDs of voters, their thumb signatures and voted options.
  + Gets messages from all EVMs and responds the action taken.
  + Receives the signature from EVM.
  + Verifies if the signature is correct and the user has not voted. Sends assert/negate message in response to this
  + Receives candidate selection from EVM . updates the selection and acknowledges to EVM