



Intelligent Notice Board

CSP315 Sem I , 2010-2011

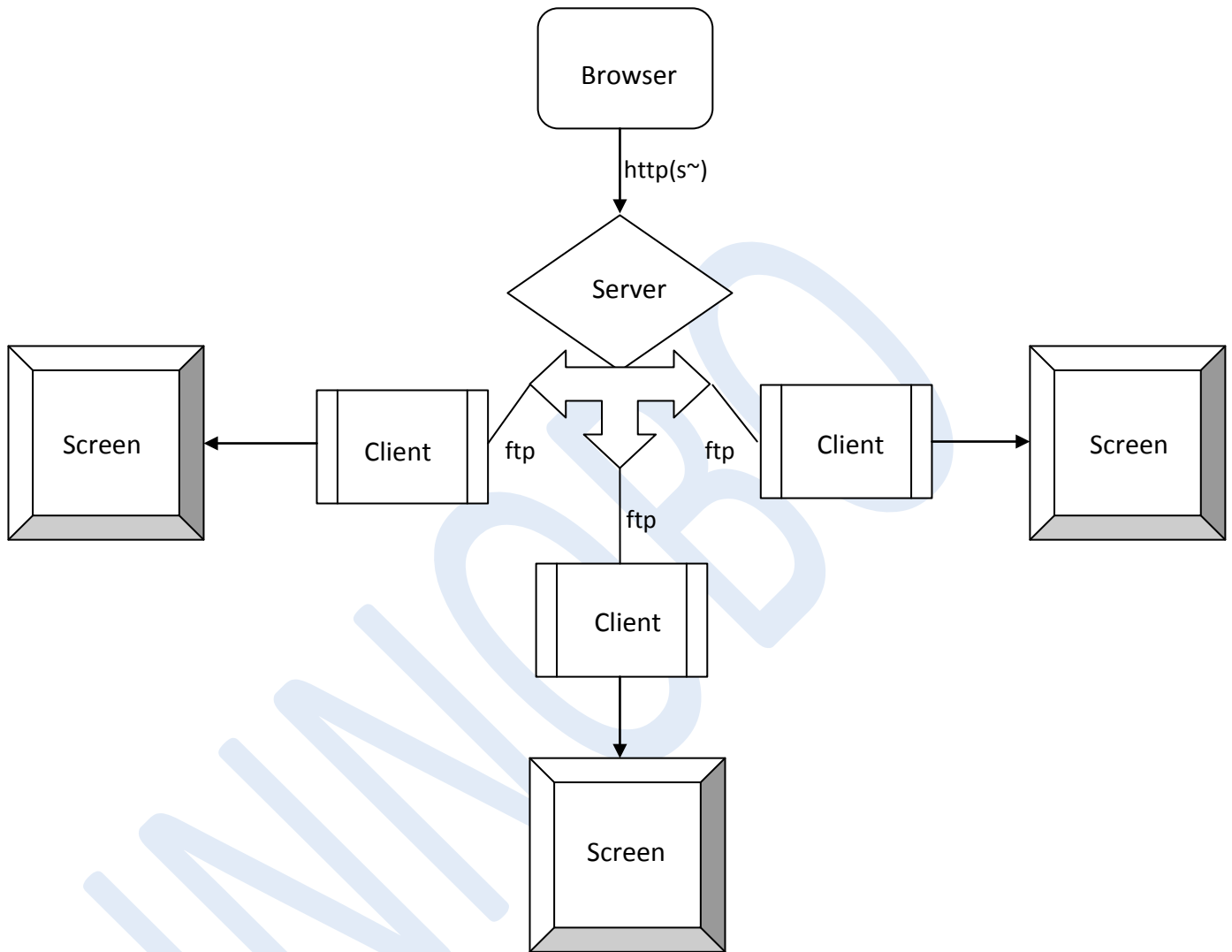
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Block Diagram



Methodology

PULL MECHANISM

The server collects all the poster, side tapes and ticker tapes from the user. The client pings the server repeatedly after certain interval of time. And gets the uploaded files themselves and all the necessary files containing data regarding the uploads. Then it checks the expiry of the uploads and sends them to the buffer for display, if they are not expired. It also keeps track of the delete requests made, if any.

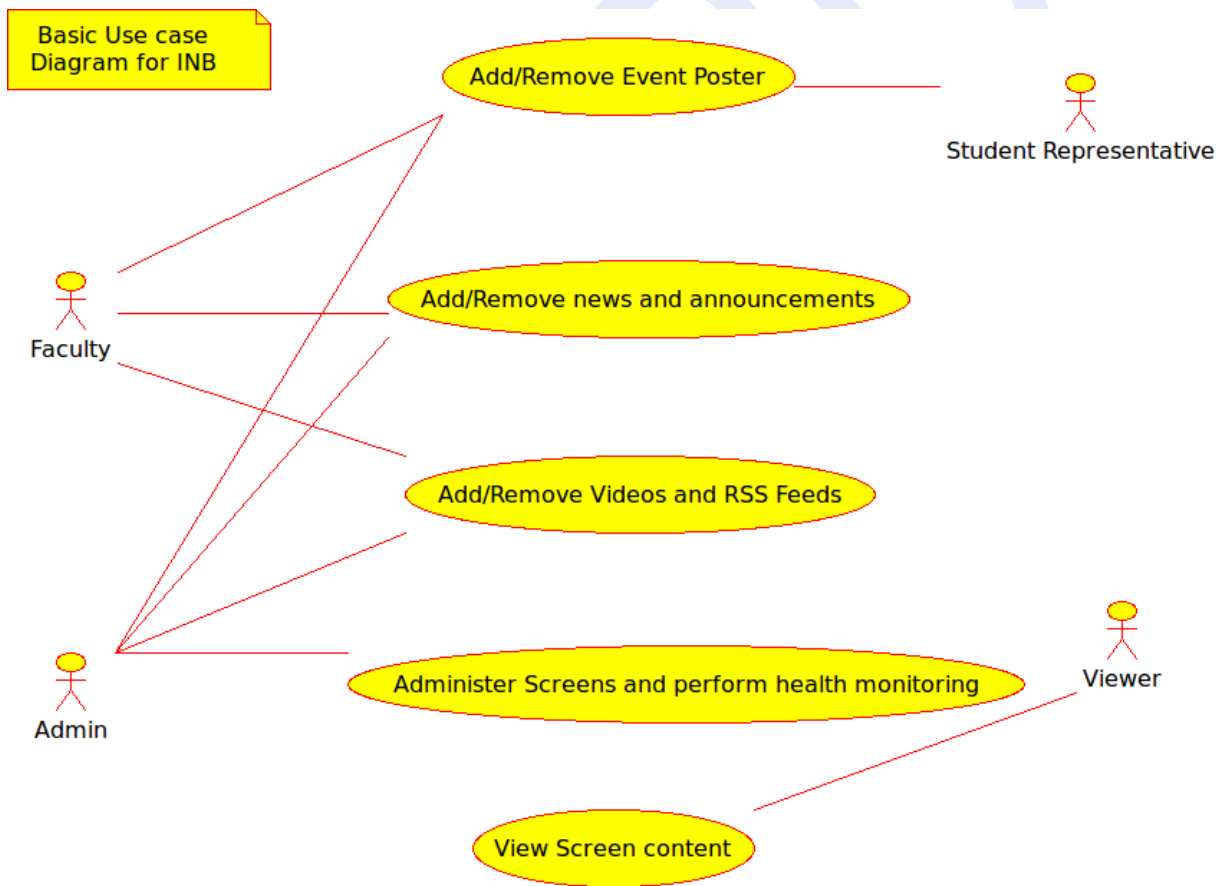


Fig 1: Use Case Diagram

Major Components/Kits

1. Till now we have been working with Leopard Board 355. Now we have shifted to Leopard Board 365 based on TMS320DM365 processor for the following reasons:

- Better quality of pictures
- Video support

Details and capabilities of the board are:

- ARM926EJ-S Core: 216, 270 and 300 MHz
- Video Processing Subsystem
- Two video image co-processors (HDVICP, MJCP) engines
- Hardware On-Screen Display(OSD)
- HD Video Codecs: H.264, MPEG4, MPEG, WMV9/VC1, MPEG2
- SD memory card support
- Composite TV/Component HD TV output
- 10/100 Ethernet Port
- Capable of 720p 30fps H.264 video processing

For further development on DM365, we have decided to use Ridge Run SDK.

2. LCD Screen
3. SD card
4. Component to support connection with server via 3G

Progress of project

CLIENT

- **“No event region”** – In case of no upcoming events in side tape, a white background is displayed which was not the case earlier. This was done using a YUV editor.
- **Poster display time** – The user has been provided with the option of assigning priority (duration of display) to the poster uploaded.
- **Screen templates** – Based on location and purpose, specific layouts may be needed. So we have figured out how to design new screen layouts and have already designed a new screen layout.

For this we did some research on the use of frame buffers and how to manipulate them. For managing the transparency of various frame buffers, we studied the attribute.attr file using hex editor. Also the code had to be manipulated largely to incorporate the new layout because the code depends on the specifications of layouts (e.g. poster resolution) and it is tough to make the code generic for various display layouts!!!

- **Displaying video** – Till now we have tried to display video using DM355 board. But its video support is quite limited and we couldn't gather substantial information to display video using DM355.

However, with the new DM365 board, we have managed to run the sample code for video display successfully. Since DM365 supports more video formats (MPEG-4, MPEG-2, etc.), we expect to be able to support video display soon.

- **Ridge Run** – We have installed Ridge Run SDK for further development in Leopard Board 365. It simplifies and automates various tasks like file system customization, setting hardware configurations, etc.

SERVER

- **MVC framework** – The Website has been recoded with MVC (Model View Control) framework. This introduces Modularity and Scalability. This was done to make the code easy to understand.
- **New User Interface** – We have implemented new user interface which handles and improves all the previous shortcomings. Now the user has more choices like priority and making the poster there itself. More security features have been added.
- **Poster making feature** – Poster making feature has been included on the website. If a user wants to make the poster on the website, he is given a few templates to choose from. This was included mainly for administrative notices.
- **Poster display time** – The user has been provided with the option of assigning priority (duration of display) to the poster he uploaded. This is reflected in the display time of the poster on the client side.
- **Administrator options** – Administrator has been provided with more options like control over user privileges and Screen layout.
- **LDAP** – We tried to implement LDAP, but faced certain difficulties like we are unable to bind to the LDAP server at IIT Delhi. We are still in process of removing these difficulties.

Remaining Tasks

CLIENT

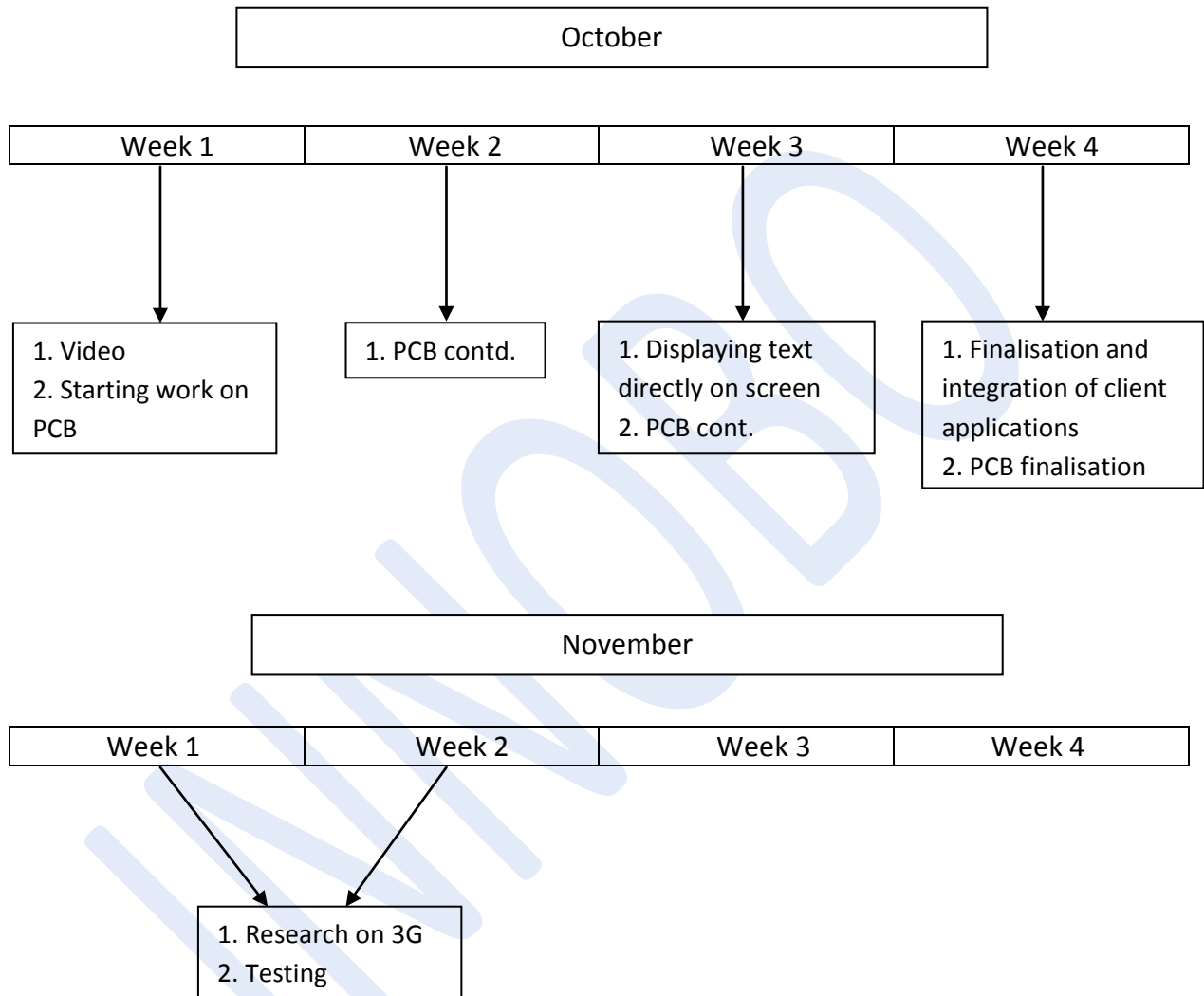
- **Development of new custom hardware (PCB)** – Till now we have been working on DM355. The available hardware contains some redundant devices which we do not require but they add up to the cost, e.g. audio codec. So making our own custom hardware will be the most important task. For this we have downloaded the OrCAD file for DM355 and DM365 and are searching for the appropriate software to edit it.
- **Client application development** – This mainly includes displaying text directly on screen, making different screen layouts and various other features. We have already made another screen layout and will make more layouts as per requirement. Also we will do some research to display text directly on the screen which appears to be possible with the new board and Ridge Run SDK.
- **3G integration** – We will also do some research on how to use 3G communication for internet instead of wired internet connection. Probably we can find some relevant hardware which integrates 3G with the board.

SERVER

- **LDAP integration** – Our next goal on the server side would be to integrate our system with IIT Delhi's LDAP server. For this we look to talk to Mr. Gopal in CSC to get some assistance.
- Providing more features to the user/admin
 - **Content moderation:** No content will be displayed on the client unless approved by the admin.
 - **Screen status:** Admin can check the status of the screens i.e. whether the screen is switched off, non-functioning or functioning.

Time line

CLIENT



SERVER

