Product Requirements Document

Company Name: Cisco
Product Name: Digital Campus

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INTRODUCTION

1.1. Document Objective

The objective of this product requirement document is to design a proposal that will enable the transition of classes and labs from offline to online mode within 3 months. It is intended to provide extensive solutions that are cost-effective, timely, and ease of use to faculty and students.

1.2. Market Problem

The upheaval caused by the pandemic has an adverse effect on the educational institutes to function in their regular way. Students are unable to physically attend classes due to the social distancing norm to be followed. Due to this, the government has mandated all the educational institutes to move online.

1.3. Market Opportunity

This massive pandemic outbreak has brought in a great opportunity for digital education. The Increasing use of the internet and smartphone penetration accompanied by the government initiative to develop digital education infrastructure has brought in huge demand for online education.

1.4. Product Concept

The proposed product enables students to remotely access classes and labs conducted by their respective faculty through online mode. Setup of video/audio-based live theory classes supported with screen sharing, availability of recorded classes and a virtual whiteboard for pointers. Attendance and schedule of classes are done through the system. Various labs can be carried online through animation, simulation, remote access to machines, or recorded videos of the demonstration of experiment by the teacher.

1.5. Sales Axioms

A reliable web based application which works efficiently anywhere and anytime provided there is good internet service. Assurance of high quality service with ensured security. Availability of compressed recorded videos which can be downloaded and watched in case of poor connectivity. Ease of performing preventative maintenance of the application, and repair services when faults are diagnosed.

1.6. Unique Selling Proposition

Digital Campus has multiple tools for the administration of the institution to utilize in furthering communicating with their students – labs, automated attendance specifically designed for educational purposes.
The proposed application takes care of both theory as well as lab classes and encourages comprehensive learning in all the fields.

PRODUCT PROJECT OVERVIEW

2.1. Section Objective

This section provides macro information about the environment into which the product will be introduced.

2.2. Target Market Description

The proposal is extensively designed for higher education institutions in India. They are broadly divided into 3 categories : universities, colleges and stand alone institutions. The 900 plus universities, 39,000 plus colleges and 10,000 plus stand alone institutions are the target market of Digital Campus.

2.3. Target Customer Description

The educational institutions opting for online higher education for their students are the target customers of Digital Campus.

- The aforementioned institutes are the buyers of Digital Campus.
- The users of the application are teachers (age group 30-65) and students (age group 18-23).

Link: http://aishe.nic.in/aishe/viewDocument.action?documentId=262

PRODUCT ENVIRONMENT

3.1 Section objective:

This section provides macro information on the constraints and assumptions that guide and limit the product's scope, functionality and impact on its future design.

3.2 General constraints:

1. The language that the software has to be written in and whether the software has to be developed for a specific OS. If a specific language is required, then it'll reduce flexibility and can end up being costly and the choice of operating system can affect the speed of development of the software.
2. Whether a specific framework has to be used. Selecting a framework is a critical design decision, because the selected framework will dictate the application architecture. Once the development has started, changing the selected framework may require the redesign and reprogramming of the application.
3. The kind of databases to be used for stor age. All databases have different specifications. Trying to make a certain database work for a project can add unnecessary complexities.

3.3 Assumptions and Dependencies:

1. Students and teachers should have the required bandwidth available and good network connectivity at their place.
2. The webcam and speakers should be in a working condition

PRODUCT REQUIREMENTS

4.1 Section Objective:

This section describes the functional and feature requirements of the product.

4.2 External Interface Requirements

- Solution must be compatible with all platforms
- Must offer ease of use, seamless experience
- Lag-free UI and a customized meeting room

4.3 Functional Requirements

Students

- Should be able to attend classes
- Should be able to check attendance
- Should be able to check schedule
- Should be able attend labs / submit lab work
- Should be able submit tests

Teachers

- Should be able take classes
- Should have automatic attendance and class scheduling

- Should be able take labs/ view submissions grade them
- Should be able view test submission and grade them

Administrators

- Should be able assign students and teachers to classes
- Should be able schedule classes / labs
- Should be able make exam schedules and declare results

4.4 Performance Requirements

- Low latency and considerable bandwidth
- Scalable
- High traffic management
- Low computation at end users for an error free experience

4.5 Safety and Security Requirements

- Role based access control
- Authorised access to data
- End to end encryption
- Prevent data leaks and protect sensitive data

4.6 Software Quality Attributes

- Adaptability - is made adaptable to take into account all types of users.
- Availability - will be open to use by everyone.
- Flexibility - made flexible enough for future changes.
- Robustness - program is made to suggest many different types of use cases.
- Maintainability - versions of the software can be rolled out in the future with the updates having changes suggested by the users.

4.7 Hardware requirements

- Computer and processor-Minimum 1.6 GHz (or higher) (32-bit or 64-bit).
- Memory-2.0 GB RAM
- Hard disk-3.0 GB of available disk space
- Display-1024 x 768 screen resolution
- Graphics hardware-Minimum of 128 MB graphics memory
- Video-USB 2.0 video camera
- Devices-Standard webcam, microphone, and speakers

Supporting Data:

5.1. Section Objective:

This section provides data in support of claims, assertions, assumptions, and statements made throughout this document.

5.2. PRD Assumptions:

1. Funding of licenses will be provided by various departments as needed and use of 3rd party applications will be dependent on the operating system, the application server, and the database server.
2. The project scope will not change once the stakeholders sign off on the scope statement.

5.3. Research Information

We conducted two Surveys. In the first survey we asked college faculty what features are lacking in the current learning platform, for which we found two common problems: ATTENDANCE and LAB CONDUCTION. In second Survey we gave faculty two options:

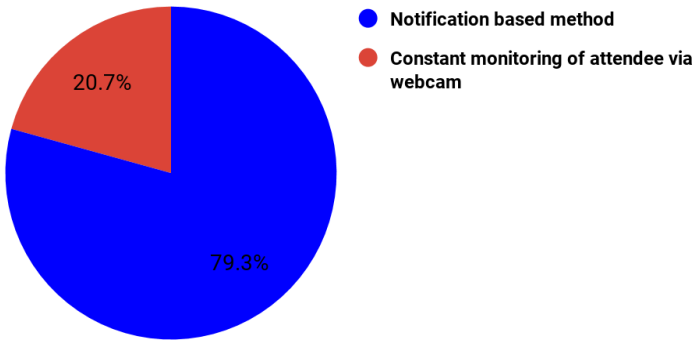
For attendance tracking:

1. Notification based method (using pop up dialog box which student has to respond to)
2. Constant monitoring of attendee via webcam (using facial recognition algorithm)

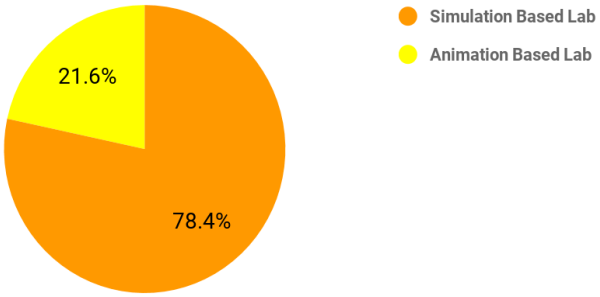
For lab conduction:

1. Animation Based Lab.
2. Simulation Based Lab.

Result is as follows:



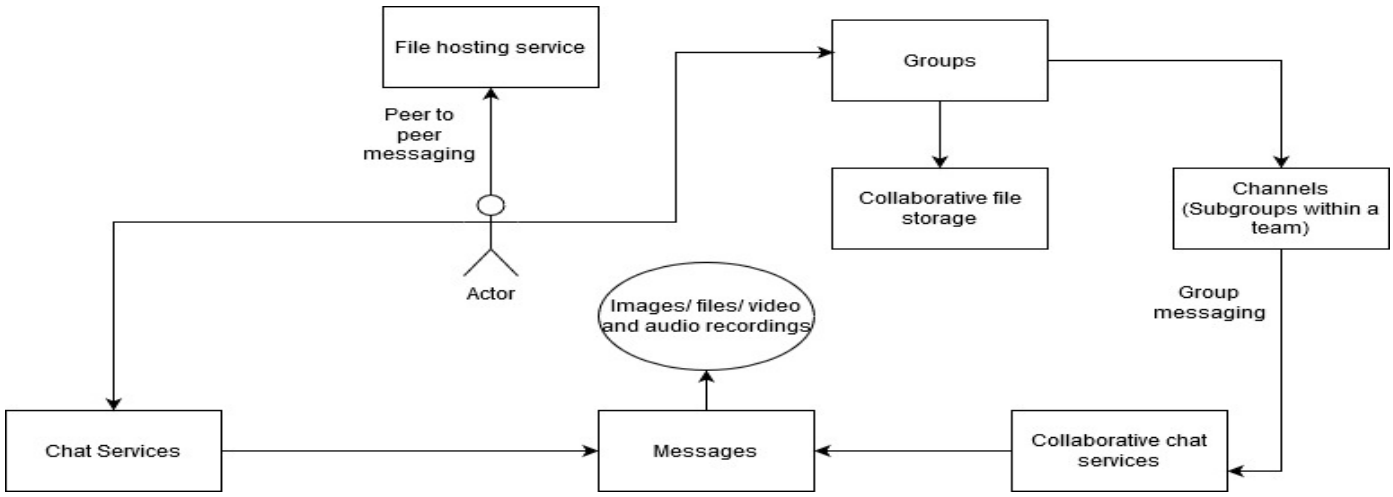
Out of 111 responses, 88 faculty choose option 1; Notification based method.



Out of 111 responses, 87 faculty choose option 1; Simulation Based Lab. But we'll incorporate both types of lab because Animation Based Lab can help in teaching basic lab techniques, step-by-step procedure of an experiment and prepare students to operate equipment correctly through animation.

5.4. Product Diagram/Architecture

5.4.1 Logical Architecture:



5.4.2 Dataflow Architecture: