

# SCHOOL IN THE CLOUD

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**Abstract** - The concept of E-learning is very broad. It was coined in late 90s as the technological enhanced learning mechanism through Internet. Now it captures a broad range of electronic media like Internet, Intranets, Extranets, satellite broadcast, audio, video tape, interactive TV and CD-ROM to make the learning procedure more flexible and user friendly. Because of the flexible nature of E-learning, it has got more demand among the people of our country and the demand is increasing day by day. As the demand is increasing, this is the time to standardize the whole e-learning system in a proper way and the time to increase the quality of existing standards. Though many standards are already there and has accepted by many academia, institutes and organizations, still there are some gaps and works are going on to make them more practicable and more systematic. It also analyses the importance of e-education system and recent market of e-learning procedure.

**Key Words:** e-learning, Interactive TV, CD-ROM, Video tap, Extranet

## 1. INTRODUCTION

Every day new approaches are coming and bringing new prospects in education and trying to refine the system towards personalized self-learning. The benefits of E-learning are mainly the cost efficiency, accessibility and flexibility. Certainly education is the most important part of the human evolution and may be a crucial part of shaping the future of human beings.

The need for education is increasing constantly and the development and the improvement of the e-learning solutions is necessary. Also, the e-learning systems need to keep the pace with the technology, so the new direction is to use cloud computing.

### Objective

In order to improve the quality of education in India. So we are proposing a cloud based e-learning system for the school

## 2. Overall Description:

### 2.1 Prospects

- Learners can access information that is correct and up to date through the web, information databases or university.
- Learners are able to meet in a virtual space with other members and practitioner experts to discuss issues, answer questions and even participate in simulations and management games without having to leave their office or home.
- Learners benefit from learning when required, learners are able to access the right sort of training at the right time with the right people. Learners have access when they want it.
- Learners have access to the same materials.
- Learners regardless of where they are receive the same message and are able to engage other learners and practitioners globally.

### 2.2 Problem Statement

The current approach for e-learning is a manual which use the book and the teacher which is good, but that creates the difference between the studding approach for students. Implement of "Mid day meal" related skills are manually which can be cheated intentionally.

### 2.3 Minimum Hardware Requirement

- RAM 256Mb
- Hard Disk 4GB
- WI-Fi Router
- Aakash Tablet

## 2.4 Minimum Software Requirement

- Java SDK
- Eclipse with android plug-in
- Mysql
- Ubuntu Desktop OS

## 3. Project Plan

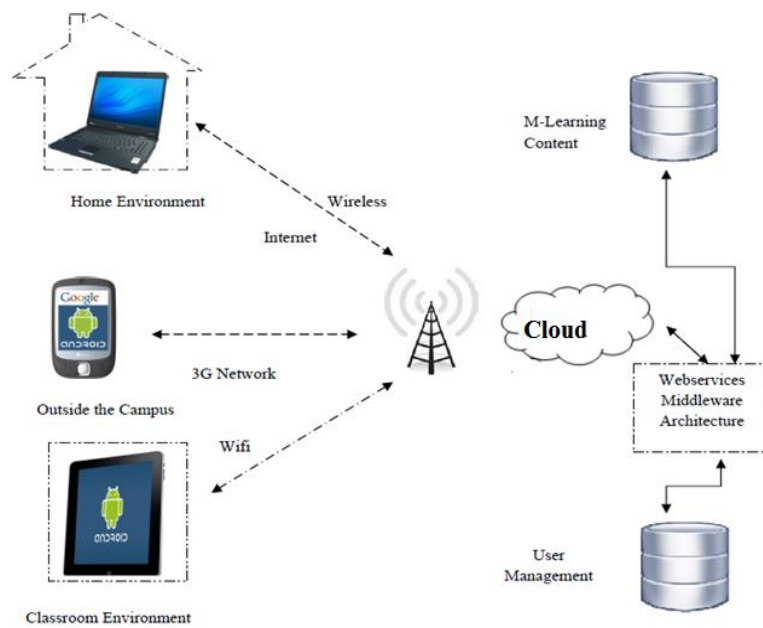
	Requirement description	Source
1	Main admin registers the school and upload the notification . Now school admin the register the tab and the upload standard wise video etc.	School in the cloud
2	In client side, If the user is not authenticated or registered he has to register first. Then he can log in to the system.	School in the cloud
3	In a school register enter the user name and detail about the school. when a tab register it contains the Mac address and detail about the student .	School in the cloud
4	When user click on the application it verify the tab register it success go to the next, otherwise It is full.	School in the cloud
5	When successfully tab register it uploads general video , pdf, notification etc.	School in the cloud

Task Name	Duration	Start	Finish
<b>1 Scope</b>	<b>10 days</b>	<b>Mon 7/1/13</b>	<b>Thu 7/11/13</b>
1.1. Determine project scope	3 days	Mon 7/1/13	Wed 7/3/13
1.2 Define preliminary resources	4 days	Thu 7/4/13	Mon 7/8/13
1.3 Secure core resources	3 days	Tue 7/9/13	Thu 7/11/13
1.4 Scope complete	10 days	Mon 7/1/13	Thu 7/11/13
<b>2 Analysis/Software Requirements</b>	<b>12 days</b>	<b>Fri 7/12/13</b>	<b>Wed 7/24/13</b>
2.1 Conduct needs analysis	2 days	Fri 7/12/13	Sat 7/13/13
2.2 Draft preliminary software specifications	2 days	Mon 7/15/13	Tue 7/16/13
2.3 Develop preliminary price for hardware	1 day	Wed 7/17/13	Wed 7/17/13
2.4 Review software specifications/price with the team	2 days	Thu 7/18/13	Fri 7/19/13
2.5 Incorporate feedback on software specifications	2 days	Sat 7/20/13	Sun 7/21/13
2.6 Develop a completion timeline	1 day	Mon 7/22/13	Mon 7/22/13
2.7 Obtain approvals to proceed (concept, timeline, price)	1 day	Tue 7/23/13	Tue 7/23/13
2.8 Secure required resources	1 day	Wed 7/24/13	Wed 7/24/13
2.9 Analysis complete	12 days	Fri 7/12/13	Wed 7/24/13
<b>3 Design</b>	<b>16 days</b>	<b>Thu 7/25/13</b>	<b>Fri 8/9/13</b>
3.1 Review preliminary software specifications	4 days	Thu 7/25/13	Sun 7/28/13
3.2 Develop functional specifications	2 days	Wed 7/31/13	Thu 8/1/13

3.3 Develop prototype based on functional specifications	2 days	Fri 8/2/13	Sat 8/3/13
3.4 Review functional specifications	3 days	Sun 8/4/13	Tue 8/6/13
3.5 Incorporate feedback into functional specifications	2 days	Wed 8/7/13	Thu 8/8/13
3.6 Obtain approval to proceed	1 day	Fri 8/9/13	Fri 8/9/13
3.7 Design complete	16 days	Thu 7/25/13	Fri 8/9/13
<b>4 Development/Coding/Implementation</b>	<b>70 days</b>	<b>Fri 8/2/13</b>	<b>Wed 10/30/13</b>
4.1 Review functional specifications	6 days	Fri 8/2/13	Wed 8/7/13
4.2 Identify modular/tiered design parameters	7 days	Thu 8/8/13	Thu 8/15/13
4.3 Assign development staff	7 days	Fri 8/16/13	Fri 8/23/13
4.4 Develop code	50 days	Sat 8/24/13	Wed 10/30/13
4.5 Developer testing (primary debugging)	20 days	Thu 10/31/13	Mon 11/25/13
4.4 Develop code	70 days	Fri 8/2/13	Wed 10/30/13
<b>5 Testing</b>	<b>45 days</b>	<b>Thu 10/31/13</b>	<b>Fri 12/27/13</b>
<b>5.1 Unit Testing</b>	18 days	Thu 10/31/13	Fri 11/22/13
5.1.1 Review modular code	3 days	Sat 11/23/13	Tue 11/26/13
5.1.2 Test component modules to product specifications	4 days	Wed 11/27/13	Mon 12/2/13
5.1.3 Identify anomalies to product specifications	3 days	Tue 12/3/13	Thu 12/5/13
5.1.4 Modify the code	5 days	Fri 12/6/13	Thu 12/12/13
5.1.5 Re-test modified code	3 days	Fri 12/13/13	Tue 12/17/13
5.1.6 Unit testing complete	18 days	Thu 10/31/13	Fri 11/22/13
<b>5.2 Integration Testing</b>	15 days	Sat 11/23/13	Thu 12/12/13
5.2.1 Test module integration	2 days	Sat 11/23/13	Mon 11/25/13
5.2.2 Identify anomalies to specifications	3 days	Tue 11/26/13	Thu 11/28/13
5.2.3 Modify the code	7 days	Fri 11/29/13	Mon 12/9/13
5.2.4 Re-test modified code	3 days	Tue 12/10/13	Thu 12/12/13
5.2.5 Integration testing complete	15 days	Sat 11/23/13	Thu 12/12/13
<b>5.3 Functional Testing</b>	12 days	Fri 12/13/13	Fri 12/27/13
5.4 System Testing	12 days	Fri 12/13/13	Fri 12/27/13
<b>6 Documentation</b>	<b>8 days</b>	<b>Mon 12/30/13</b>	<b>Tue 1/7/14</b>
6.1 Develop Help specification	2 days	Sat 12/28/13	Mon 12/30/13
6.2 Develop Help system	2 days	Tue 12/31/13	Wed 1/1/14
6.3 Reviews Help documentation	2 days	Thu 1/2/14	Fri 1/3/14
6.4 Incorporate Help documentation feedback	2 days	Sat 1/4/14	Mon 1/6/14
6.5 Documentation complete	8 days	Mon 12/30/13	Tue 1/7/14
<b>7 Deployment</b>	<b>10 days</b>	<b>Wed 1/8/14</b>	<b>Mon 1/20/14</b>

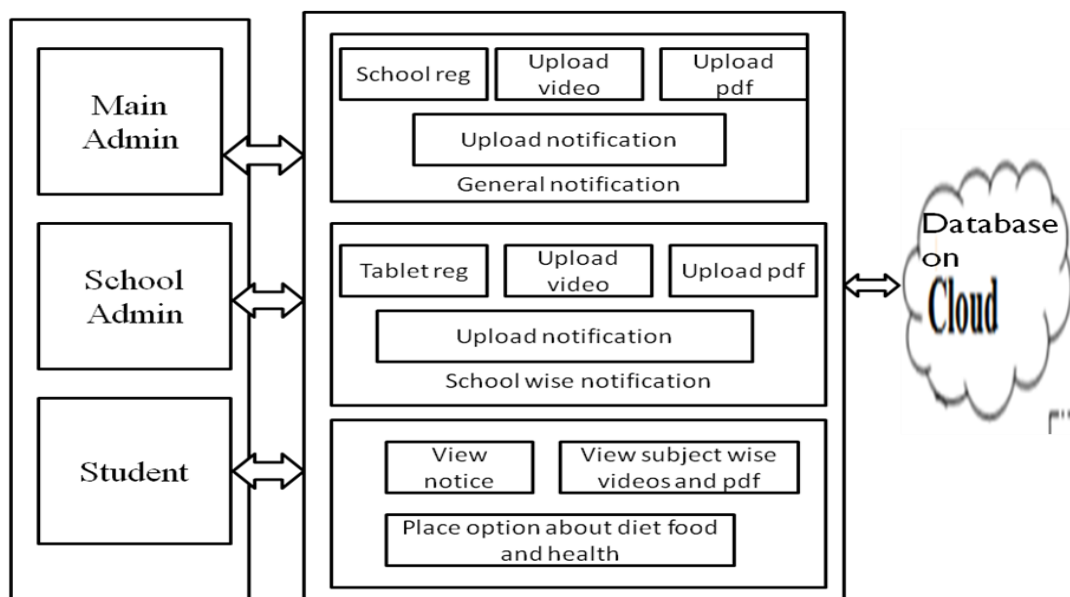
7.1 Determine final deployment strategy	1 day	Wed 1/8/14	Wed 1/8/14
7.2 Develop deployment methodology	4 days	Thu 1/9/14	Tue 1/14/14
7.3 Secure deployment resources	3 days	Wed 1/15/14	Fri 1/17/14
7.4 Deploy software	2 days	Sat 1/18/14	Mon 1/20/14
7.5 Deployment complete	10 days	Wed 1/8/14	Mon 1/20/14
<b>8 Software development complete</b>	<b>164 days</b>	<b>Mon 7/1/13</b>	<b>Mon 1/20/14</b>

**3.1 Architecture:**



**Figure 1 Architecture**

Now below figure shows the block diagram:



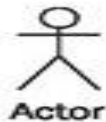
**Figure 2 Block Diagram**

Figure 2 is a block diagram. In this diagram there are three modules Main Admin, School Admin & Student. Main admin contain school registration, it uploads video, notification & pdf. . School admin consists tablet registration it also contains standard wise videos & pdf. Student module view notification, videos & pdf.

#### 4. Methodology AND Implementation

##### 4.1 Use case Diagram

A use case is a functionality the users need from the system. A use case diagram depicts the relationships among the actors and use cases. It is usually used for requirements analysis. The components in a use case diagram include:



- Actors: Actors are indicated as

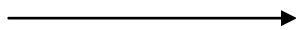
Actors represent external entities of the system. These can be people or things that interact with the system that is being modeled. For example, if we are modeling an online store we have many actors that interact with the store functionality. The customer browses the catalog, chooses items to buy, and pays for those items. A stocker will look at the orders and package items for the customer. A billing system will charge the customer's credit card for the amount purchased.

- Use Cases: Use case is indicated by notation



Use cases are functional parts of the system. When we say what an actor does, that's a use case. The customer "browses the catalog", "choose items to buy", and "pays for the items". These are all use cases. Many actors can share use cases. If we find a use case that is not associated with any actor, this may be an unnecessary functionality.

- Associations: Associations are indicated by the notation



Associations are shown between actors and use cases, by drawing a solid line between them. This only represents that an actor uses the use case.

There are also two kinds of relationships between use cases:

- Includes: Include is represented as



Use cases that are associated with actors can be very general. Sometimes they "include" more specific functionality. For example, the "pump gas" use case that is associated with the customer includes three use cases: Choose Gas Type, Fill Tank, and Calculate Total. Includes relationship is represented by dashed arrows that point to the included functionality. Beside the arrow is <<includes>>.

Extends:

An extension use case is an insertion to the base use case. For example, some stores may allow for different payment options like credit card, debit card, or cash on delivery. These specific functionalities are an extension of the general "pay for items." Extends relationship is represented by dashed arrows that point to the base functionality. Beside the arrow is <<extends>>

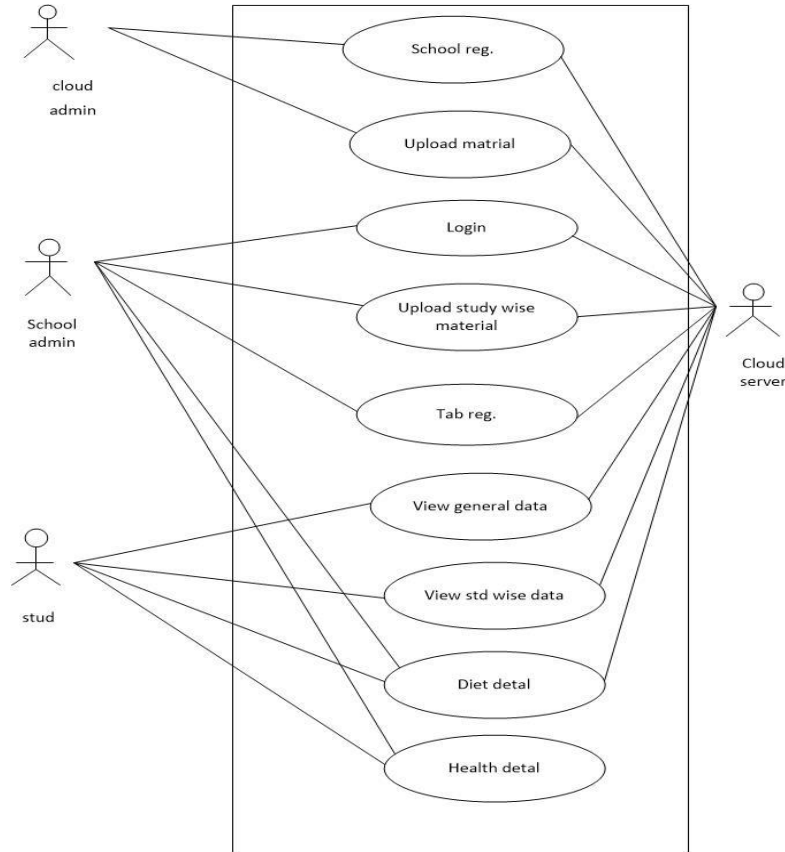


Figure 3 Use case Diagram

In above figure 3 shows the sequence diagram in which there is only one actor i.e user of the application and three use cases are present registration, login and user data.

#### 4.2 Data Flow Diagram

Data Flow Diagram is re-present about System or a Sub System Process along with Data Flow, Data Storage and External Entity components. Context Diagram can design with any appropriate Notation and the Data Flow Diagram should design with following Pictograms. In practice, the Process, Data Flow, Data Store and External Entity should transform into Application Code, Screen, Data File and Application End User DFDs are constructed using four major components

1. External entries
2. Data stores
3. Processes and
4. Data flows

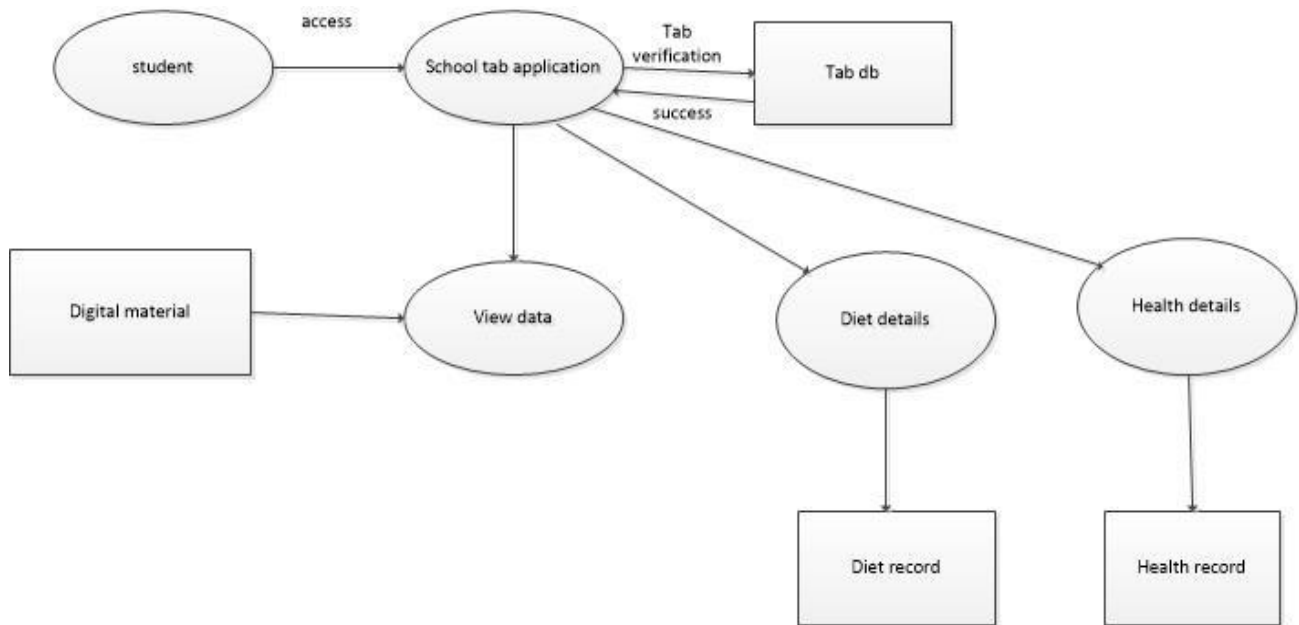
**External entities** represent the source of data as input to the system. They are also the destination of system data. External entities can be called data stores outside the system. These are represented by squares. External entity is represented as

**Data stores** represent stores of data within the system, for example, computer files or databases. An open-ended box represents a data store, which implies store data at rest are the temporary repository of data.

Data stores are represented as

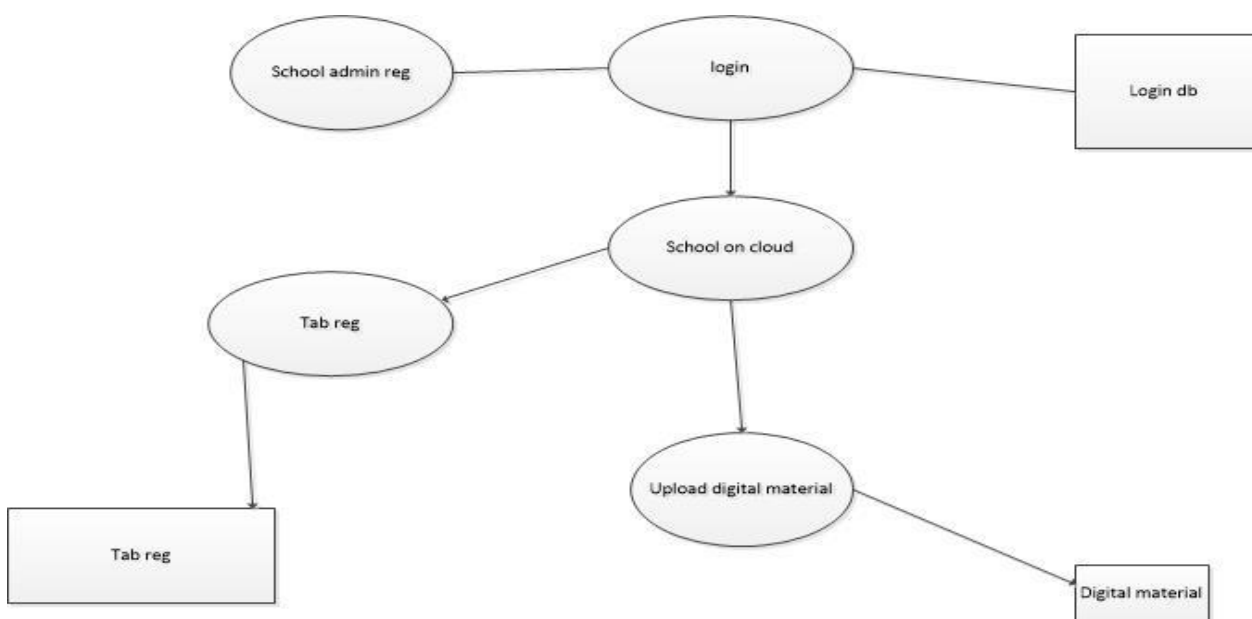
**Processes** represent activities in which data is manipulated by being stored or retrieved or transferred in some way. In other words, we can say that process transforms the input data into output data. Circles stand for a process that converts data into information.

**Data flow** represents the movement of data from one component to the other. An arrow (→) identifies data flow, i.e. data in motion. It is a pipeline through which information flows. Data flows are generally shown as one-way only. Data flows between external entities are shown as dotted lines (----->).



**Figure 4** Data Flow Diagram for Student

Above figure 4 shows Data Flow Diagram in which the rectangle indicates the entities, the circle represents a process and arrows indicate the flow of information. In above figure we can see the flow of information in the system. First student access the school tab application then checking the tab verification.



**Figure 5** Data Flow Diagram

School Administrator.

Above figure 5 shows Data Flow Diagram in which the rectangle indicates the entities, the circle represents a process and arrows indicates the flow of information. In above figure we can see the flow of information in the system. In this diagram first school admin login to the cloud database & after that it uploads video & other digital material.

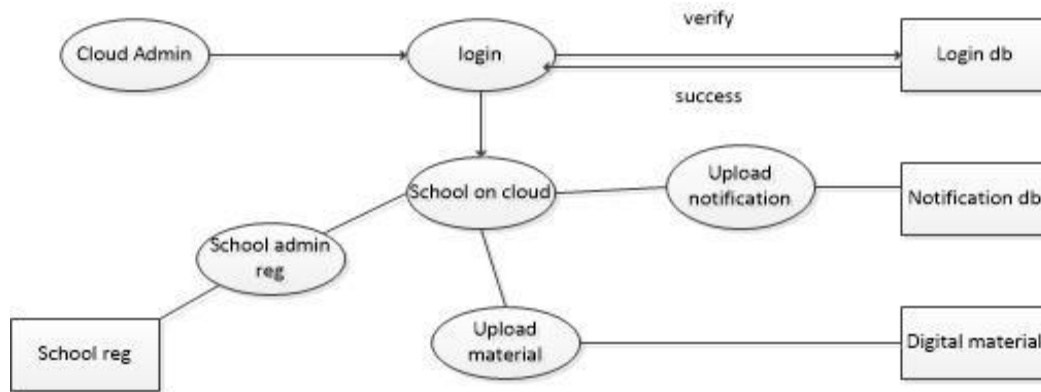


Figure 6 Diagram Main Administrator

Above figure 6 shows Data Flow Diagram in which the rectangle indicates the entities, the circle represents a process and arrows indicates the flow of information. In above figure we can see the flow of information in system. Cloud admin is the main admin it log on to the main database. & after that it uploads all material on that it also includes school registration.

#### 4.2 Sequence diagram

Sequence diagram is the most common kind of interaction diagram, which focuses on the message interchange between a number of lifelines.

Sequence diagram describes an interaction by focusing on the sequence of messages that are exchanged, along with their corresponding occurrence specifications on the lifelines.

The following nodes and edges are typically drawn in a UML sequence diagram: lifeline, execution specification, message, combined fragment, interaction use, state invariant, continuation, destruction occurrence.

Lifeline: -Lifeline is a named element which represents an individual participant in the interaction. While parts and structural features may have multiplicity greater than 1, lifelines represent only one interacting entity.

Message: Message is a named element that defines one specific kind of communication between lifelines of an interaction. The message specifies not only the kind of communication, but also the sender and the receiver. The sender and receiver are normally two occurrence specifications (points at the ends of messages).

Combined fragment: Combined fragment is an interaction fragment which defines a combination (expression) of interaction fragments. A combined fragment is defined by an interaction operator and corresponding interaction operands. Through the use of combined fragments the user will be able to describe a number of traces in a compact and concise manner.

The combined fragment may have interaction constraints also called guards in UML 2.4.

Interaction use: Interaction use is an interaction fragment which allows to use (or call) other interaction. Large and complex sequence diagrams could be simplified with interaction uses. It is also common reusing some interaction between several other interactions.

Referenced interaction has formal gates. Interaction use provides a set of actual gates that must match the formal gates of the interaction.

Interaction use works as:

- Copy the contents of the referred interaction to where this interaction needs to be used,
- Substitute formal parameters with arguments,
- Connect the formal gates with the actual ones.



The interaction use is shown as a combined fragment with operator ref.

**State invariant:** A state invariant is an interaction fragment which represents a runtime constraint on the participants of the interaction. It may be used to specify different kinds of constraints, such as values of attributes or variables, internal or external states, etc.

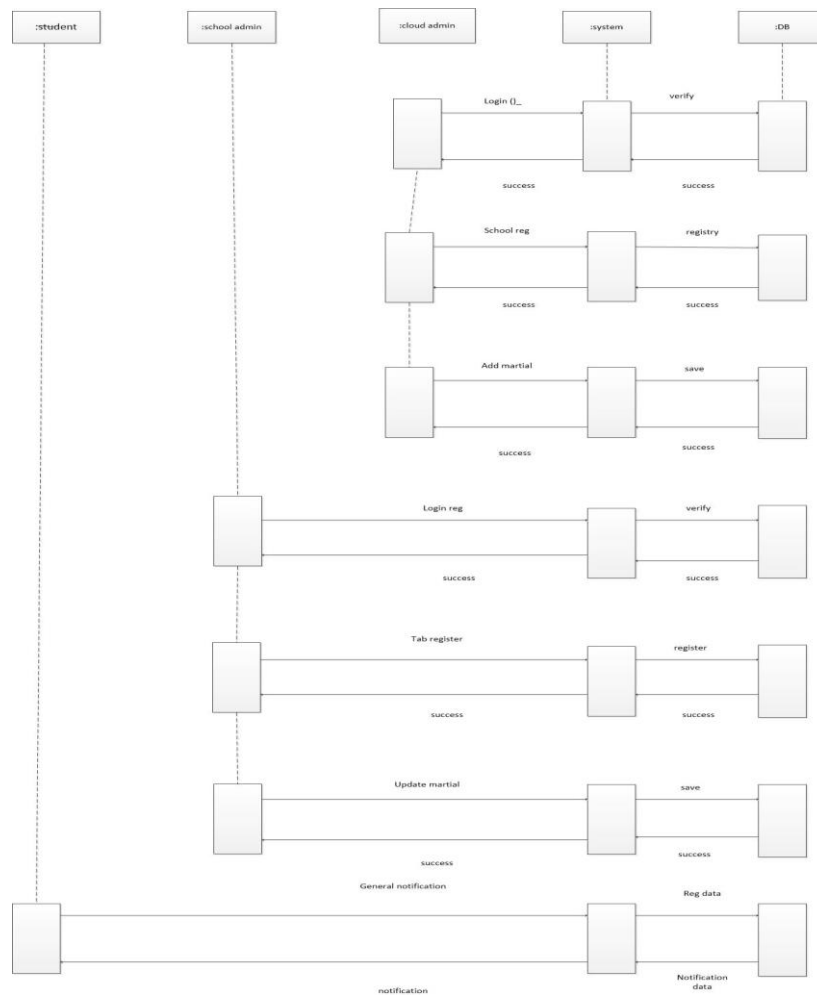
The constraint is evaluated immediately prior to the execution of the next occurrence specification such that all actions that are not explicitly modeled have been executed. If the constraint is true, the trace is a valid trace, otherwise the trace is an invalid trace.

State invariant is usually shown as a constraint in curly braces on the lifeline.

**Occurrence:** Destruction occurrence is a message occurrence which represents the destruction of the instance described by the lifeline. It may result in the subsequent destruction of other objects that this object owns by composition. No other occurrence may appear below the destruction event on a given lifeline.

Complete UML name of the occurrence is a destruction occurrence specification. Until UML 2.4 it was called destruction event, and earlier - stop.

The destruction of the instance is depicted with a cross in the form of an X at the bottom of a lifeline.



**Figure 7** Sequence Diagram

Above figure 7 shows the Sequence diagram whereas the sequence diagram is used primarily to show the interactions between objects in the sequential order that those interactions occur. Much like the class diagram, developers typically think sequence diagrams were meant exclusively for them. The horizontal arrow line indicates the flow of message between the different objects of the system. The vertical dotted line indicates the lifeline.

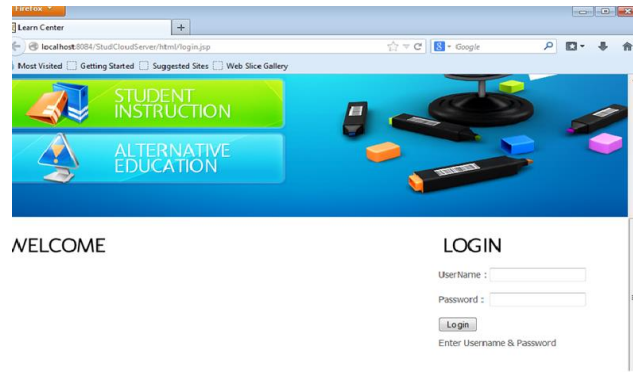


Figure 8 Login window for students

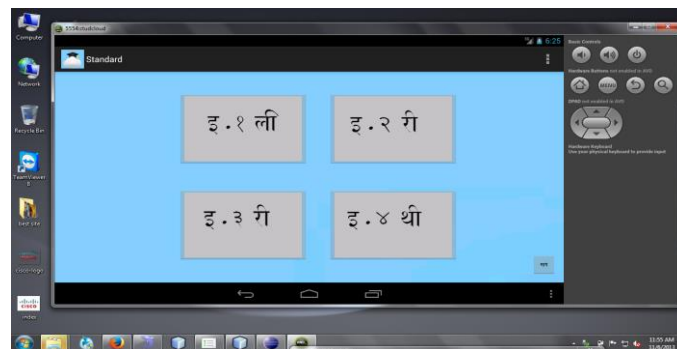


Figure 9 After login class window for selecting class



Figure 10 window after class selection

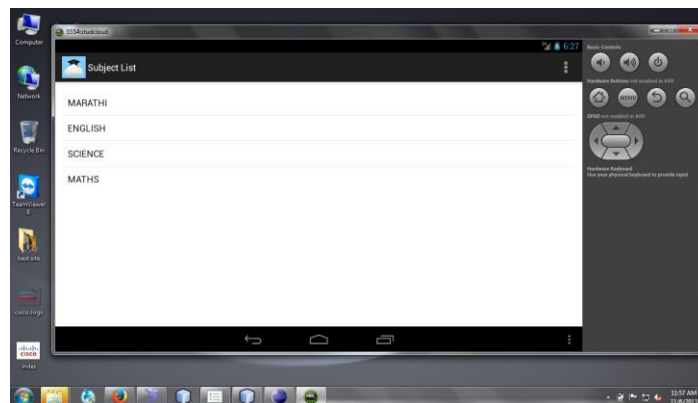


Figure 11 window after selection of study

### 3. CONCLUSION

In this project, the sun tracking system is developed based on 89C51 microcontroller. The microcontroller 89C51 based circuit is used in this system with a minimum number of components and the use of stepper motors enables accurate tracking of the sun. It has been shown that the sun tracking systems can collect maximum energy than a fixed panel system collects and high efficiency is achieved through this tracker, it can be said that the proposed sun tracking system is a feasible method of maximizing the light energy received from sun. This is an efficient tracking system for solar energy collection.

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