

# Educational Audience Response System

\* An educational framework for modern classrooms.

Ahmed Kamel Taha  
College of Computing and Information Technology  
Arab Academy for Science, Technology & Maritime Transport  
Alexandria, Egypt  
ahmedengu@student.aast.edu

**Abstract**—An educational audience response system framework that enables lecturers evaluation of students understanding on real-time and navigates according to a preset network of decisions powered by teacher PowerPoint web Add-In and student cross-platform mobile application.

**Keywords**—Educational Audience Response System, EduARS, Audience Response, PowerPoint, presentation

## I. INTRODUCTION (HEADING 1)

The ability to evaluate every student understanding of the course material is not an easy task and here is where EduARS come into action as it gives teachers the power to plan ahead of time the flow of their presentation according to students understanding rate.

Using EduARS help teachers save time by skipping over parts that are well understood by the students thus teachers can focus on the parts that are new to students and give them a detailed summary of each student answer to questions alongside with class attendance.

EduARS is open source built for the most common platforms being used by teachers and students which are PowerPoint and mobile devices thus eliminate the need for buying any special devices or license.

## II. EASE OF USE

### A. Teacher PowerPoint Add-In

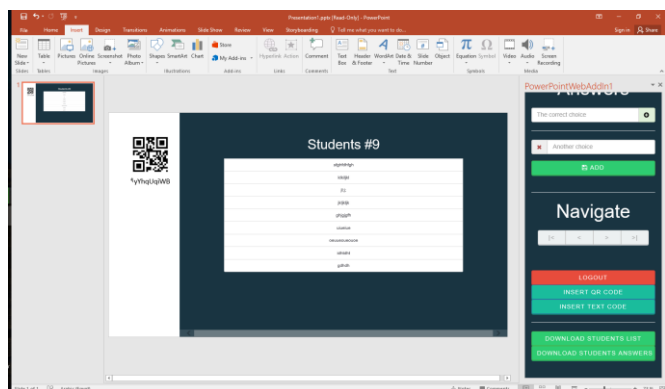


Figure 1: Teacher PowerPoint Add-In.

The PowerPoint Add-In designed with user experience in mind with simple and well-described usage steps to make teachers interaction with the system seamless.

### B. Student App

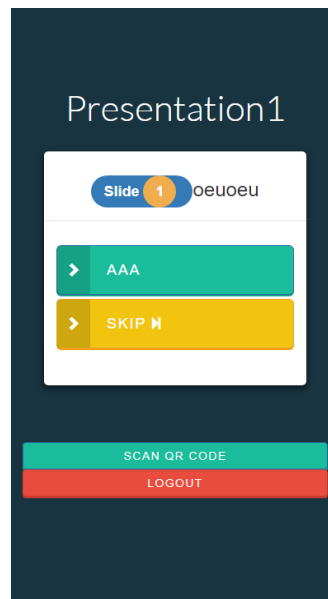


Figure 2: Student Mobile App

The student app part of the system only focuses on students answer to the presented question only and vibrate when there is a new question available to notify the student thus decrease distraction.

The student app is built for mobile devices using web-based cross-platform technologies thus support a wide array of devices alongside a web and desktop version so it can be accessible to all students.

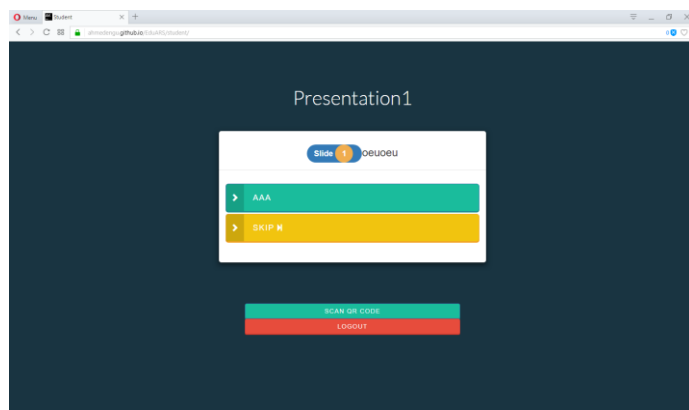
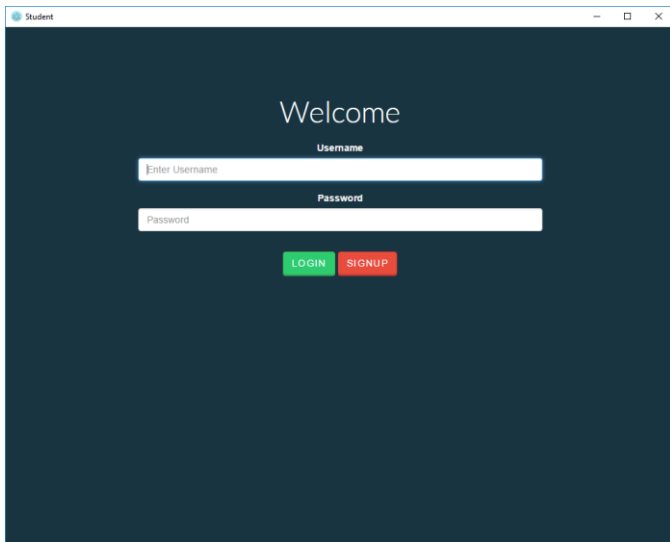


Figure 3 Student App Web Version



**Figure 4 Student App Desktop Version**

### III. METHODOLOGY

#### A. Backend



**Figure 5 Parse**

The backend built using parse the open source backend as a service that leverage NodeJS for server-side scripting and MongoDB for the database with the built-in user management system and real-time system which provide a base for all the system advanced capabilities.

#### B. Frontend

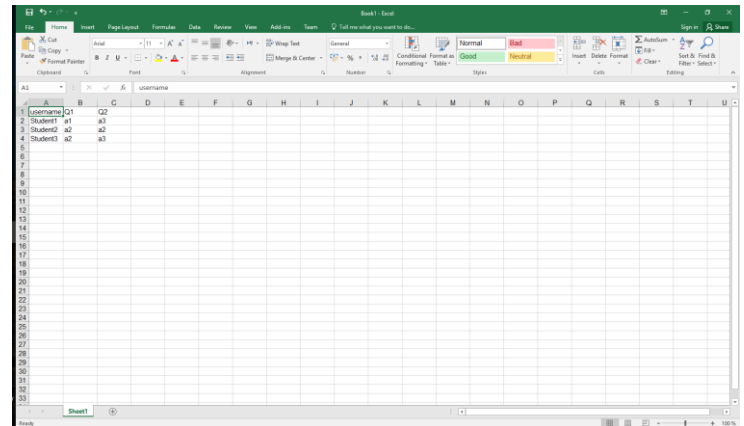


**Figure 6 AngularJS**

The front end is built with modern web technologies as a single page application powered with AngularJS and is being wrapped with Office Web Add-In to deliver the PowerPoint Add IN, Cordova to deliver the cross-platform student

mobile application, Electron to deliver the desktop application and also served as a normal website on GitHub.

### IV. RESULTS



**Figure 7 Students Answers**

After using EduARS in a real classroom environment it noticed how easy it is to set up the system on teacher and students devices in the first place with a huge improvement in the interaction level on the classroom which is powered by real-time insights from students answers that resulted on 90% understanding of the lecture between students and a huge welcoming from the teachers side to use the system as it provides real-time feedback alongside with detailed reports and student attendance.

### V. EDUARS VS CLICKAPAD



**Figure 8 ClickAPad Pad**

ClickAPad is one of the available off the shelf products on the market that is work as an audience response system however it requires buying a special pad for every student and does not provide any kind of integration with PowerPoint.

### VI. FUTURE WORK

There is a room for a lot of possible improvements for the system that is in our TODO lists such as allowing students to form groups, testing the PowerPoint Add-In on office 360 and implementing a new mobile app for the teacher to provide more insight and control.