

Design Presentation

11/19/2013 – Version 1.0

The Aviators

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Sponsor Information

Company

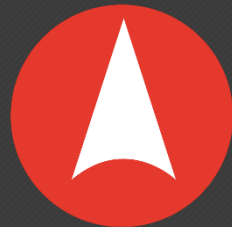
- True Course Aviation
- Prepar3D simulation program

Contacts

- Raynald Bédard
- Arjomand Kalayeh

Project

- SOAR



Problem Statement

Two main problems

- No way for students to track their progress in simulation courses
- Institutions have no way to integrate into the SOAR system

Solution Overview – Students

3rd Party Software



SOAR Application



For students, we will

provide progress reports

using the SOAR system

Students use software

Sends back a file

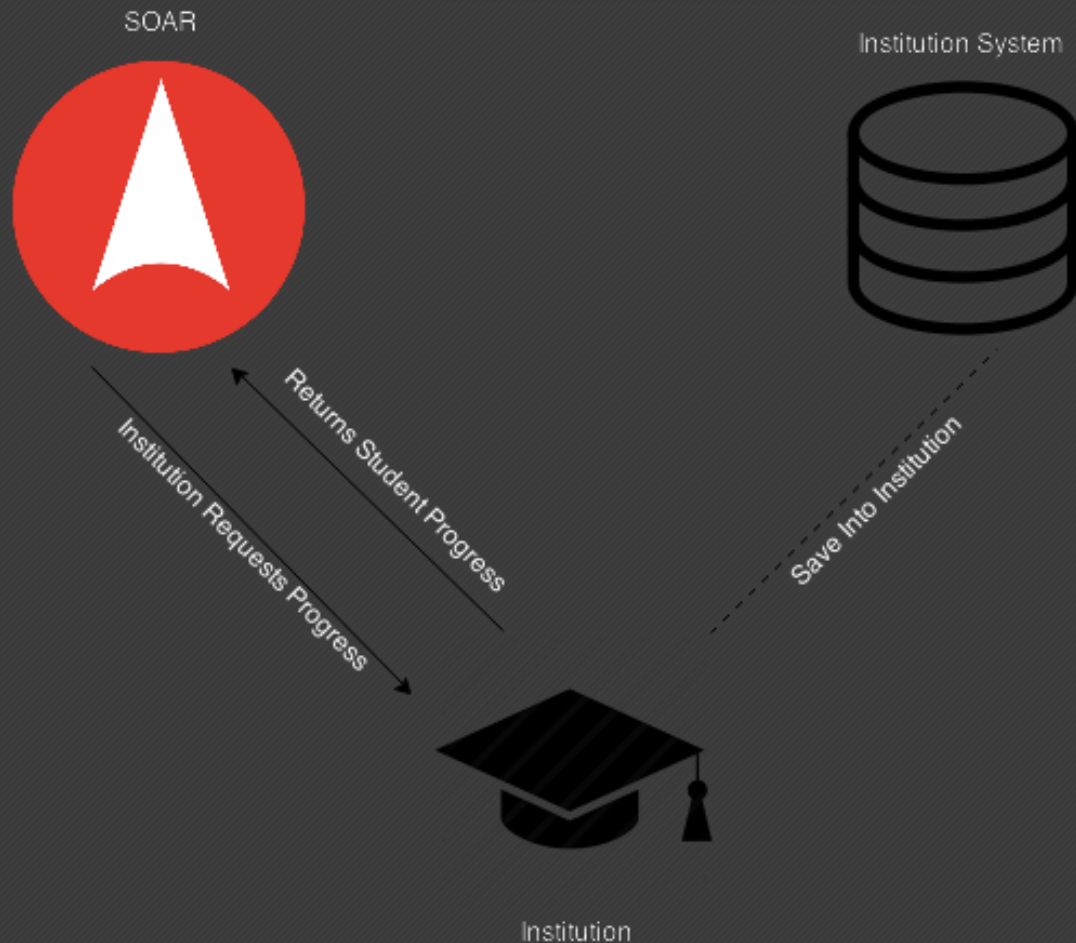
Submit the file

Website displays results



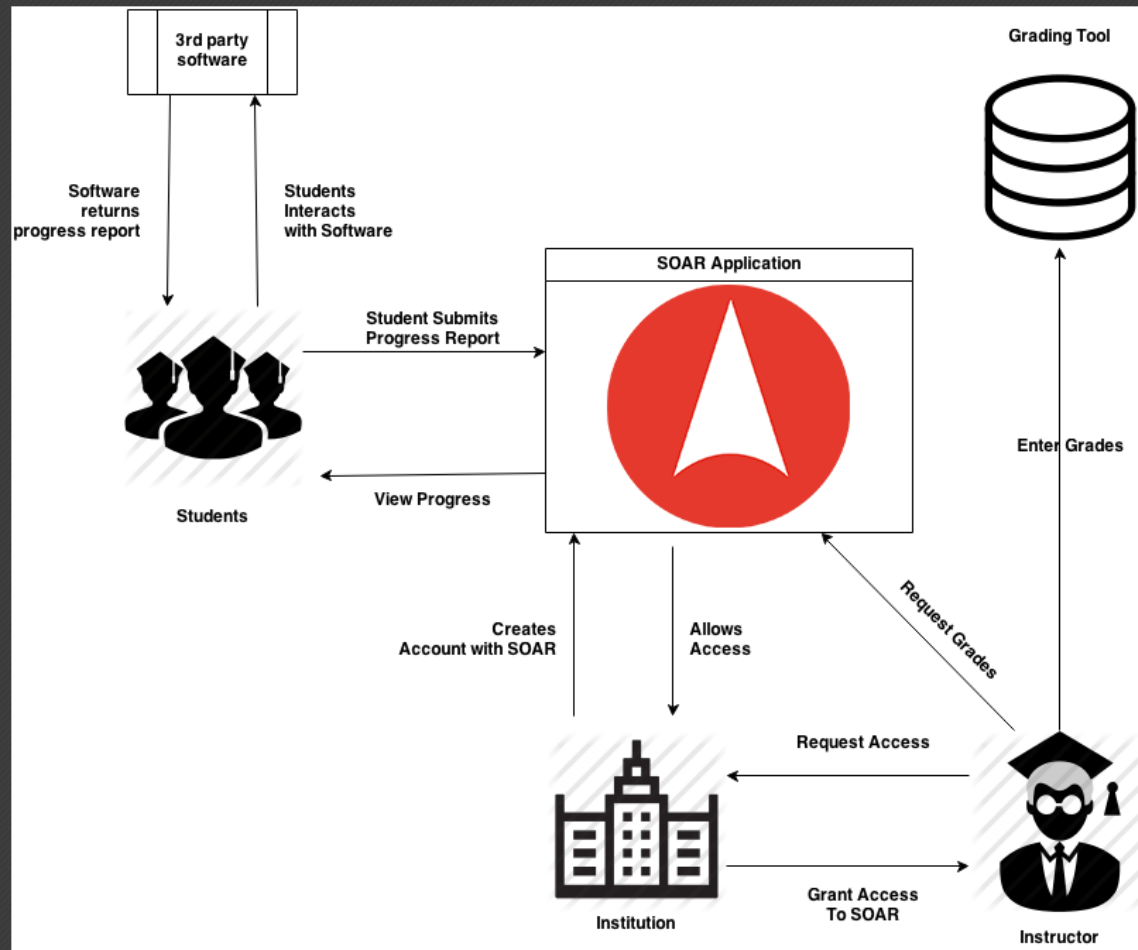
Students

Solution Overview – Institutions



For institutions, we will
provide student
reports
using the SOAR system

Architecture Overview



High Level Overview of System Architecture

Competition

<http://www.talon-systems.com/>

- Web-Based Flight Course Management System

<http://tincanapi.com/>

- Web-Based Grade Management System with Integration Libraries

Requirements Acquisition

With no current system in place, functional requirements were established to satisfy the needs of the problem

Talked with the sponsor to compare what the SOAR system needs with our proposed requirements

Researched existing solutions, like TinCan, to develop our functional requirements

Functional Requirements – I

User Management System

- Multiple User Levels
 - System Administrators
 - Institution Administrator
 - Instructors
 - Students



SYSTEM ADMINISTRATOR



INSTITUTION ADMINISTRATOR



INSTRUCTORS



STUDENTS

Functional Requirements – II cont.

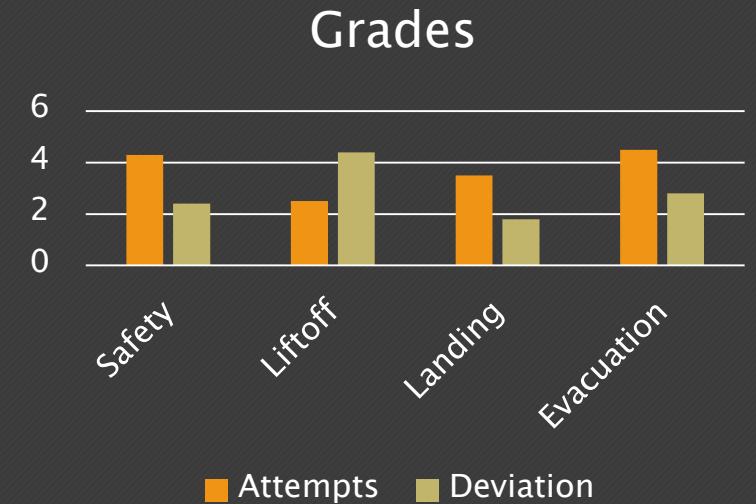
Dashboard

- Role-based content
 - System Administrator Role
 - Institution Administrator Role
 - Teacher Role
 - Student Role

Functional Requirements – III

Course Progress

- Data Gathering
 - Web application accepts encrypted XML file for parsing
- Data Storage
 - Information is saved to a relational database
- Data Representation
 - Charts are used to show student metrics on the courses



Non-Functional Requirements

Performance

- Web site load times less than 2 seconds

Reliability

- 100% uptime is not critical

Recoverability

- Application's state can be recovered from backup

Verifiability

- Reports from students need to be authentic

Environmental Requirements

Software

- Ubuntu Server
- Nginx Web Server
- Oracle's MySQL Database Server
- PHP/HTML (data processing)
- CSS/Bootstrap (styling)

Hardware

- 3.0 Ghz+ Processor
- 4Gb+ Memory
- 80Gb+ Solid-State Hard Drive
- 10 – 100 mbps
(depending on ISP / location)

Risks

Risk	Risk Severity	Primary Cause	Mitigation Strategy
Loss of data	High	Server or database instability	Regular data backups to remote server
Server down		High network traffic or system vulnerability	Application-state backups and remote/local access to server
Malformed Data	Medium	Progress File does not meet file syntax	Only accept proper data and notify user of failure
Improper Reporting		Misinterpretation of data received	Strict enforcement of file syntax and strong unit testing
Web Application Errors	Low	Many causes, human to application errors	System Administrators equipped to handle variety of problems

Schedule

		2014																
		January			February				March				April					
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Activity		13 - 17	20 - 24	27 - 31	03 - 07	10 - 14	17 - 21	24 - 28	03 - 07	10 - 14	17 - 21	24 - 28	31 - 04	07 - 11	14 - 18	21 - 25	28 - 02	05 - 09
Basic Website Functionality	▼	Website Functionality																
General Website Front End		Web Design																
Ability to Login				Login														
User Level Authentication				User Levels														
Changing the look						Interface Editing												
Dashboard Functionality									Dashboard									
Reporting Functionality	▼	Report Functionality																
Data Processing									Data/Database									
Data Gathering											Data Gathering							
Data Interpretation															Data Interpretation			
Unit Testing	▼	Unit Testing throughout development																
Website Testing		Website Functionality Testing																
Data Processing Testing										Data Processing Testing								
Traffic Testing														Traffic Stress Testing				

System Milestones



Conclusion

The Problem

- No management of students, or institutions, to the SOAR application

The Solution

- A web application for students to upload their progress
- Institution integration for SOAR application to increase customers

Questions and Comments?

