

Executive Summary (Jiaying Wang)

The design project chosen by the team is to develop an online web application to help students to form teams and find projects for ECE496. In order to have a high completion of the online system, the project was divided into two parts, team finder and project finder. Our team's main focus is to accomplish the project finder. The goal of this project is to develop an online system that provides a platform for students and professors to post projects, help students find suitable project and let professors to claim projects to supervise for the ECE496 Design Project Course.

To accomplish the project in time, the project was distributed into two major parts: frontend and backend implementation. Zhi Hao and Haoke were responsible for background implementation, including establishing the web server and creating the database schema. While Yu Tong and Jiaying worked on implementing web pages and user interface. After both side completed their task, Yu Tong and Jiaying connected the frontend with the backend so that the web application can get and update with the data and make everything functional.

Tests were applied separately on frontend and backend as well. For frontend, several tests are done manually, such as actions like creating, editing, liking and discussing about projects can be successfully performed. Both getting origin data from backend and transmitting updated information back to backend have been tested as well. For backend, tests are done manually. Zhi Hao and Haoke use postman application to send GET and POST request to each backend APIs, all response are as same as expected response.

In general, the final design for project finder has successfully met the project's goal and requirements as proposed. In addition, the team also managed to integrate the project finder with the other team's team finder. By combining two projects, the new ECE496 online system now can allow users to find, post and discuss about projects; students can form teams and get recommendation for projects based on their interests. Two teams will get some real users to test the system locally before the Design Fair and fix any potential bugs. Then the system will be put online and let real users to use and command on the new system and hopefully the design can be actually put in use for future ECE496 course.

Initial Frontend Implementation

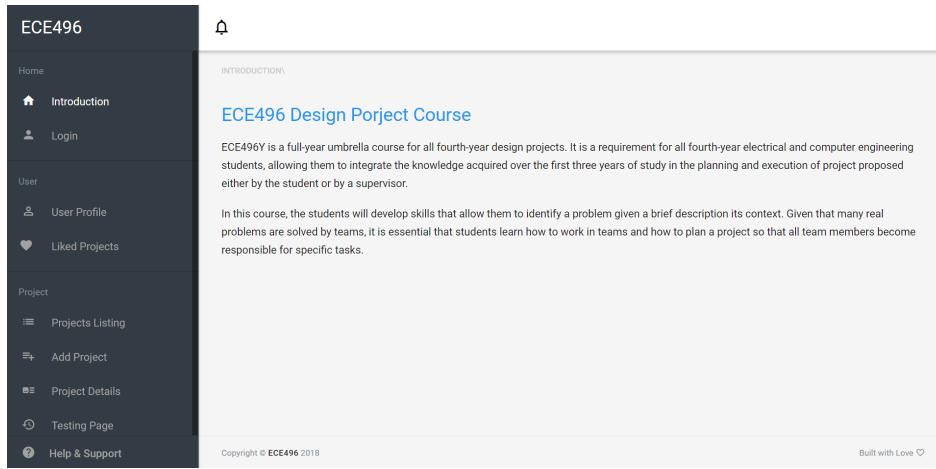


Figure 1: 'Introduction' page from initial version

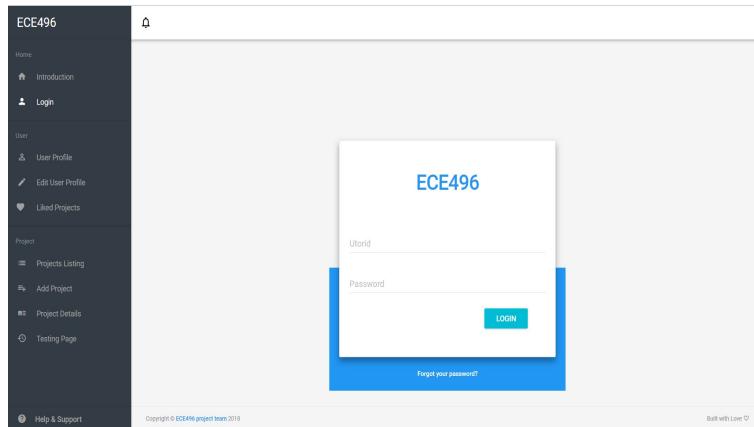


Figure 2: 'Login' page from initial version

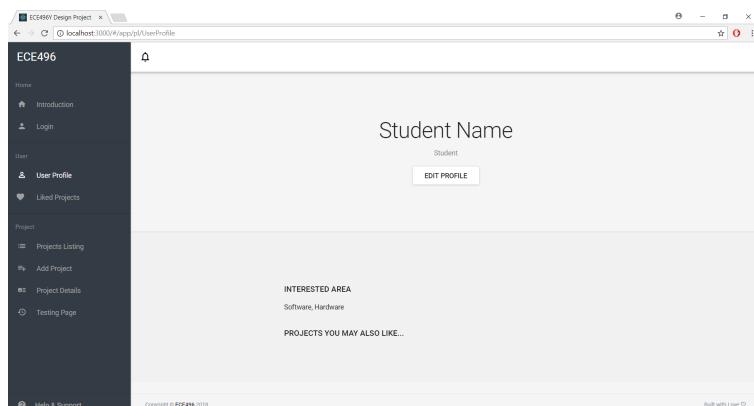


Figure 3: 'Introduction' page from initial version

The screenshot shows a web browser window titled 'ECE496 Design Project'. The URL is 'localhost:3000/ece496/addproject'. The left sidebar has a dark theme with white text. It includes links for Home, Introduction, Login, User Profile, Liked Projects, Projects Listing, Add Project, Project Details, and Testing Page. The main content area is titled 'Create a New Project'. It contains fields for 'Project Title' (with placeholder 'Enter Project Title'), 'Related Area' (with a dropdown menu showing 'Select All' and options for Software, Computer Networks, Semiconductor Physics, Photonics, and Electromagnetics), and 'Description' (with placeholder 'Enter Project Description'). A blue 'SUBMIT' button is at the bottom.

Figure 4: ‘Creating project’ page from initial version

The screenshot shows a web browser window titled 'ECE496'. The URL is 'localhost:3000/ece496/projectslisting'. The left sidebar has a dark theme with white text. It includes links for Home, Introduction, Login, User Profile, Edit User Profile, Liked Projects, Projects Listing, Add Project, Project Details, and Testing Page. The main content area is titled 'Projects Listing' and shows a table of projects. The columns are Project ID, Posting Date, Project Title, Status, and Created By. The table contains 10 rows of sample data. At the bottom right of the table is a navigation bar with buttons for 0, 1, 2, 3, 4, 5, 6, 7, >, and >>.

Figure 5: ‘Project listing’ page from initial version

The screenshot shows a web browser window titled 'ECE496'. The URL is 'localhost:3000/ece496/projectdetails'. The left sidebar has a dark theme with white text. It includes links for Home, Introduction, Login, User Profile, Liked Projects, Projects Listing, Add Project, Project Details, and Testing Page. The main content area is titled 'ECE496 project finder' and shows detailed information for a project. It includes sections for 'PROJECT STATUS' (Open, accept 2-4 team members), 'RELATED AREA' (Software, Hardware), and 'DESCRIPTION' (a long, repetitive placeholder text). Below the description is a 'LIKED BY' section with a single entry: 'student' on Saturday, September 24, 2016 5:02 PM.

Figure 6: ‘Project details’ page from initial version

Final Frontend Implementation

Figure 1: ‘Search page’ for projects, users and teams.

The screenshot shows a web browser window titled 'localhost ECE496'. The left sidebar has a 'DASHBOARD' section with a 'BETA' badge, followed by 'CREATE', 'SEARCH', 'USERS', 'PROJECTS', 'TEAMS', and 'FAQ' sections. A dropdown menu for 'ARIANE ALFRED' is open. The main content area is titled 'Status' and 'Areas'. Under 'Status', there are checkboxes for 'Open' and 'Closed'. Under 'Areas', there is a list of categories with checkboxes: Programming on the Web (checked), Software, Hardware, Natural Language Computing (checked), Computer Graphics (checked), Database, Communication Systems, Digital Electronics, Analog Electronics, Operating Systems, Electronic Circuits, Microprocessor, VLSI, Robot, Microwave Circuits, Computer Security, Chatbot, Machine Learning, AI, and GPU. An 'Apply' button is at the bottom of the sidebar. The main list displays ten user profiles with their names, areas of expertise, and last activity dates. Each profile includes a green progress bar.

User	Areas	Last activity
Philip Anderson	Computer Security	2018-03-18 00:00
Berj Bardakjian	Machine Learning, Communication Systems, Database	2018-03-18 00:00
Vaughn Betz	Communication Systems, AI	2018-03-18 00:00
Mireille Broucke	Hardware, Communication Systems, Natural Language Computing, Microwave Circuits	2018-03-18 00:00
Stephen Brown	Computer Graphics, Communication Systems, Computer Security	2018-03-18 00:00
Tony Carusone	Hardware, Microwave Circuits	2018-03-18 00:00
Margaret Cheng	Natural Language Computing, Computer Graphics	2018-03-18 00:00
Paul Chow	Electronic Circuits, Microwave Circuits, Programming on the Web, AI	2018-03-18 00:00
Francis Dawson	Electronic Circuits, Analog Electronics, Database, Computer Graphics, Communication Systems	2018-03-18 00:00
Stark Draper	Chatbot	2018-03-18 00:00
George Eleftheriadis		2018-03-18 00:00

The screenshot shows a web browser window titled 'localhost ECE496'. The left sidebar has a 'DASHBOARD' section with a 'BETA' badge, followed by 'CREATE', 'SEARCH', 'USERS', 'PROJECTS', 'TEAMS', and 'FAQ' sections. A dropdown menu for 'ARIANE ALFRED' is open. A central modal window is titled 'CREATE' with the sub-instruction 'Please select the type you would like to create'. Inside the modal, there are two large buttons: 'PROJECT' (blue) and 'TEAM' (orange). Behind the modal, there are three cards: 'Available Projects' (10+), 'Available Users' (8), and 'Available Teams' (7). At the bottom of the page, there is a text input field with a calendar icon, a 'Post' button, and a message 'Last update: Sat Mar 17 2018 22:17:53 GMT-0400 (EDT)'.

Figure 2: ‘Create page’ to create project or team

localhost

ECE496

ARIANE ALFRED CREATE A PROJECT

DASHBOARD BETA

CREATE

SEARCH

USERS

PROJECTS

TEAMS

FAQ

Project Title *

Please enter a unique project title here...

Number of Members *

2 3 4

Project Abstract *

Minim 20, Maximum 400 characters, please enter full details in Description below

Related Areas

<input type="checkbox"/> Programming on the Web	<input type="checkbox"/> Software	<input type="checkbox"/> Hardware	<input type="checkbox"/> Natural Language Computing
<input type="checkbox"/> Computer Graphics	<input type="checkbox"/> Database	<input type="checkbox"/> Communication Systems	<input type="checkbox"/> Digital Electronics
<input type="checkbox"/> Analog Electronics	<input type="checkbox"/> Operating Systems	<input type="checkbox"/> Electronic Circuits	<input type="checkbox"/> Microprocessor
<input type="checkbox"/> VLSI	<input type="checkbox"/> Robot	<input type="checkbox"/> Microwave Circuits	<input type="checkbox"/> Computer Security
<input type="checkbox"/> Chatbot	<input type="checkbox"/> Machine Learning	<input type="checkbox"/> AI	<input type="checkbox"/> GPU

Description *

Longer than short description! Put all the details!

Figure 3: ‘Create New Project’ Page

localhost:4200/projects/201769

ECE496

ARIANE ALFRED

PROJECT DETAILS

201769

Create by: Ma

OPEN accept 3

this is for superv

Related Areas: Programming on the Web

Join

You don't have a team yet, please join or create a team

Join Create

1 Likes

Discussion

Khoman Phang 2018-03-18 03:47
I want to supervise this project!

Khoman Phang 2018-03-18 03:51
i dont know why this is not working

Your comment...

Figure 4: ‘Join’ a project if user already has a team or create a new team otherwise

The screenshot shows a web browser window for the ECE496 project at localhost:4200/projects/2017695. The left sidebar includes links for Dashboard (BETA), Create, Search, Users, Projects, Teams, and FAQ. The main content area displays a project titled "2017695: this is for supervisor to claim" created by Mariana Motsinger (Student) on 2018-03-18 01:23. A green button labeled "OPEN accept 3 students per group" is present. Below the title, a comment from "Khoman Phang" on 2018-03-18 03:47 says "I want to supervise this project!". Another comment from "Khoman Phang" on 2018-03-18 03:51 says "i dont know why this is not working". A text input field "Your comment..." and a "Post" button are shown. On the right, there is a "1 Likes" section with a "Supervise" button.

Figure 5: ‘Project Detail’ Page

The screenshot shows the same ECE496 project details page as Figure 4. The sidebar and project title are identical. The main content area now features a "Recommended Projects" section with three items:

- Power Converter For Wastewater Treatment Plant**: Design of isolated power supply for Electrochemical water treatment plant. Utilizing integrated magnetic transformer. An "OPEN" button is shown.
- Design and implementation of a CNC machine**: This project considers both the hardware and software design of a CNC machine. The hardware considers sizing of electric motors, actuators, and any necessary sensors. The software provides the control of the electric motors based on the inputs from the sensors and the design criteria. In addition, software provides an environment to draw and input the design immediately. An "OPEN" button is shown.
- Augmented reality fitness trainer for Integral Kinesiology**: Integral Kinesiology full stack iOS implementation of the MannFit system, translating from Android to iOS, and implementation of the Integral Kinesiology MannFit gaming system, graphic design, and mobile development, as described in <http://wearcam.org/gem2014.pdf> as well as the research paper <http://wearcam.org/mannfit.pdf>. An "OPEN" button is shown.

At the bottom of the page, the footer reads "Company 2015-2020" and "ECE496".

Figure 6: ‘Recommendation’ section on project detail page

The screenshot shows a web browser window titled 'ECE496' at the address 'localhost:4200/projects/project-profile/83'. The left sidebar has a user profile for 'ARIANE ALFRED' with a green mushroom icon. The main content area is titled 'MY PROJECTS' with the sub-instruction 'This page shows your projects and projects you like.' Below this are three tabs: 'Your Projects', 'Liked Projects' (which is selected), and 'Supervised Projects'. Under 'Supervised Projects', there are four project cards:

- test project June 7**: Status Available
- test june 7th**: Status Available
- Student Project June 07**: Status Available
- Circuits for an Updated Interface Electronics Course**: Status Available

Figure 7: ‘Project Profile’ page showing the projects that are supervised by the user (if professor)

The screenshot shows a web browser window titled 'localhost' with the URL 'ECE496'. The left sidebar has a user profile for 'ARIANE ALFRED' with a green mushroom icon. The main content area is titled 'EDIT PROJECT: 2017606' with the sub-instruction 'Dashboard / My Project / Edit a Project'. The project details are as follows:

- Project Title ***: Autonomous Quadcopter 2
- Number of Members ***: 4 (selected)
- Status ***: Open
- Project Abstract ***: Use off-the-shelf parts for the mechanical aspects of the quad, with the bulk of the work coming from writing software using a microprocessor and an IMU to design a control system to stabilize it. The quad will be able to hover on its own, and respond to wireless commands from a ground station to change its location and speed.
- Related Areas** (checkboxes):
 - Programming on the Web
 - Computer Graphics
 - Analog Electronics
 - VLSI
 - Chatbot
 - Software
 - Database
 - Operating Systems
 - Robot
 - Machine Learning
 - Hardware
 - Communication Systems
 - Electronic Circuits
 - Microwave Circuits
 - AI
 - Natural Language Computing
 - Digital Electronics
 - Microprocessor
 - Computer Security
 - GPU
- Description ***: Use off-the-shelf parts for the mechanical aspects of the quad, with the bulk of the work coming from writing software using a microprocessor and an IMU to design a control system to stabilize it. The quad will be able to hover on its own, and respond to wireless commands from a ground station to change its location and speed.

Figure 8: ‘Edit your project’ page

Appendix F: Frontend Testing

* backend testing also incorporated into frontend testing

CREATE A PROJECT

Dashboard / Create / Create a Project

The screenshot shows a 'Create a Project' form. At the top left is a 'CREATE A PROJECT' button. At the top right are links to 'Dashboard', 'Create', and 'Create a Project'. The main area contains several input fields:

- Project Title ***: A text input field containing 'project title' with a red asterisk indicating it's required.
- Number of Members ***: Radio buttons for '2', '3' (which is selected), and '4'.
- Project Abstract ***: A text area containing 'This is the project abstract. This is the project abstract.'
- Related Areas ***: A note stating 'Please select at least one Related Area'. Below are two columns of checkboxes:
 - Left column: Programming on the Web, Computer Graphics, Analog Electronics, VLSI, Chatbot.
 - Right column: Software, Database, Operating Systems, Robot, Machine Learning.
 - Bottom row: Hardware, Communication Systems, Electronic Circuits, Microwave Circuits, AI.
 - Rightmost column: Natural Language Computing, Digital Electronics, Microprocessor, Computer Security, GPU.
- Description ***: A text area containing 'This is the project full description. This is the project full description.'

Figure 1: Result of creating a project without choosing any related areas.

User is not able to create a project without choosing any related areas. An error message will be shown.

The screenshot shows a 'Create a Project' form with several required fields highlighted by red borders and error messages:

- Project Title ***: A text input field with a red border and the message 'Please enter a Project Title'.
- Number of Members ***: Radio buttons for '2' (selected), '3', and '4'.
- Project Abstract ***: A text area with a red border and the message 'Minimun 50, Maximum 1000 characters, please enter full details in Description below'.
- Related Areas ***: A note stating 'Please select at least one Related Area'. Below are two columns of checkboxes:
 - Left column: Programming on the Web, Computer Graphics, Analog Electronics, VLSI, Chatbot.
 - Right column: Software, Database, Operating Systems (selected), Robot (selected), Machine Learning.
 - Bottom row: Hardware, Communication Systems, Electronic Circuits (selected), Microwave Circuits, AI.
 - Rightmost column: Natural Language Computing, Digital Electronics, Microprocessor, Computer Security, GPU.
- Description ***: A text area with a red border and the message 'Longer than short description! Put all the details!'.

Figure 2: Result of create a project without typing in required information

User is not able to create a project without typing in required information.

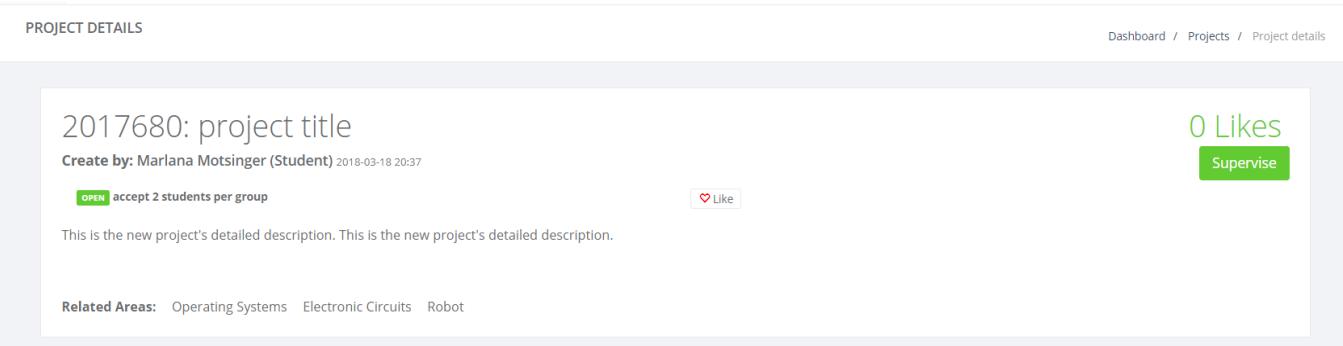


Figure 3: Result of create a project with correct information

After typing in the correct information, the project can be created, backend will return a project ID and frontend will redirect the page to the project details page using the project ID returned. For backend, newly created project is able to show up in the database after saving. And the project's information is also included in the combined data sent to the frontend.

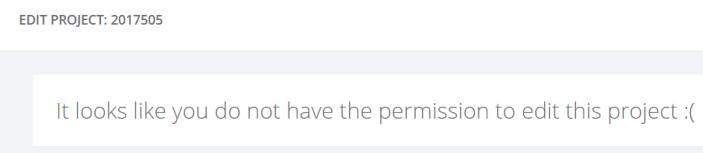


Figure 4: Result of edit a project as a student that is not the project creator

The screenshot shows an 'EDIT PROJECT' page with the ID '2017668'. At the top left is the 'EDIT PROJECT' header. At the top right are links to 'Dashboard / My Project / Edit a Project'. The main content area includes fields for 'Project Title *' (Smart Cleaning Robot), 'Number of Members *' (radio buttons for 2, 3, and 4, with 4 selected), and 'Project Abstract *' (Create a robot that will autonomously maneuver around a room and use machine learning to identify and pick up soda cans and take them to a specified location). Below these are sections for 'Related Areas *' and 'Description *'. The 'Related Areas' section contains two columns of checkboxes. The first column includes 'Programming on the Web', 'Computer Graphics', 'Analog Electronics', 'VLSI', and 'Chatbot'. The second column includes 'Software', 'Database', 'Operating Systems', 'Robot', 'Machine Learning', 'Hardware', 'Communication Systems', 'Electronic Circuits', 'Microwave Circuits', and 'AI'. The 'Description' section contains a text input field with the same project abstract text. The background is light gray.

Students are not able to edit projects that are not created by him/her.

Figure 5: Result of edit a project as project creator

The user is able to edit the project, but edit status option is not shown on the page, which means they are not able to edit the project's status.

Project Title *

Number of Members *

 2 3 4 **Status *(only supervisor can change the status)** Open Closed

Project Abstract *

Related Areas *

<input type="checkbox"/> Programming on the Web	<input type="checkbox"/> Software	<input type="checkbox"/> Hardware	<input checked="" type="checkbox"/> Natural Language Computing
<input type="checkbox"/> Computer Graphics	<input type="checkbox"/> Database	<input checked="" type="checkbox"/> Communication Systems	<input type="checkbox"/> Digital Electronics
<input type="checkbox"/> Analog Electronics	<input type="checkbox"/> Operating Systems	<input type="checkbox"/> Electronic Circuits	<input type="checkbox"/> Microprocessor
<input checked="" type="checkbox"/> VLSI	<input type="checkbox"/> Robot	<input type="checkbox"/> Microwave Circuits	<input type="checkbox"/> Computer Security
<input type="checkbox"/> Chatbot	<input checked="" type="checkbox"/> Machine Learning	<input type="checkbox"/> AI	<input type="checkbox"/> GPU

Description *

Figure 6: Result of edit a project as supervisor of the project

Supervisor of the project is able to edit the project and change the status of the project. After the user edited the project information, the project will be updated.

```
postAddLiked: null          project.service.ts:112
null                      projectDetail.component.ts:55
liked: true uid: 54 pid: 2017506 projectDetail.component.ts:56
```

Figure 7.a: The POST request for liking a project sent from frontend to backend

2017506: Design of Passive-Switched-Capacitor Filters 3 Likes

Create by: Antonio Liscidini (Supervisor) 2018-03-18 16:51

OPEN accept 4 students per group

Like Dislike Khoman Phang, Lorriane Liggett, Jianwen Zhu. ▾

Figure 7.b: Result of like a project in the project details page.

When the user clicks on the like button, frontend will sent a request to backend, and the information in the database will be updated by backend.

```
postRemoveLiked: null          project.service.ts:119
null                      projectDetail.component.ts:62
disliked: false uid: 54 pid: 2017506 projectDetail.component.ts:63
```

Figure 8.a: The POST request for unliking a project sent from frontend to backend

2017506: Design of Passive-Switched-Capacitor Filters 2 Likes

Create by: Antonio Liscidini (Supervisor) 2018-03-18 16:51

OPEN accept 4 students per group

Like Liked by: Lorriane Liggett, Jianwen Zhu

Figure 8.b: Result of unlike a project in the project details page.

When the user clicks on the dislike button, frontend will sent a request to backend, and the information

in the database will be updated by backend.

MY PROJECTS
This page shows your projects and projects you like.

Your Projects Liked Projects

Error-Efficient Hardware/Software for IoT
This project will design an IoT device that exploits error-efficient computing (also known as approximate computing). Error-efficient&#amp;#59;Approximate computing is a paradigm in which some correctness is traded-off for improvements in power consumption or performance. For example, one might be willing to have a less accurate pedometer if it means they will only need to charge the device 1&#amp;#254;;as often. Or one might be willing to accept some errors in the display of images if it increases the battery life of their laptop&#amp;#59;tablet. Error-efficient computing can be achieved through changes in one&#amp;#39;s software&#amp;#59;application code, compiler or hardware. Students in this project will propose a particular IoT&#amp;#254;;embedded system application of interest and then develop hardware and software techniques that trade-off correctness for energy savings. Multiple groups can work on this project considering different applications.

OPEN Dislike

Design of a wireless fire detection and security system
The design considers the connection of a security system in a home that allows intelligent connection to smart phone and hence monitoring the residence. The design also integrates implementation of a wirelessly connected security system including smoke and carbon monoxide detectors

OPEN Dislike

Develop an online system to help students form teams and find projects for ECE496
Develop an online system to help students form teams and find projects for ECE496. This is a challenge that students face every year and is complicated by the fact that two class years are involved and that so many students are

OPEN Dislike

Figure 9.a: Result of unlike a project in the project profile page (Before unliking)

```
liked: false pid: 2017592 uid: project-profile.component.ts:121
54
postRemoveLiked: null project.service.ts:119
```

MY PROJECTS
This page shows your projects and projects you like.

Your Projects Liked Projects

Design of a wireless fire detection and security system
The design considers the connection of a security system in a home that allows intelligent connection to smart phone and hence monitoring the residence. The design also integrates implementation of a wirelessly connected security system including smoke and carbon monoxide detectors

OPEN Dislike

Develop an online system to help students form teams and find projects for ECE496
Develop an online system to help students form teams and find projects for ECE496. This is a challenge that students face every year and is complicated by the fact that two class years are involved and that so many students are currently on PEY and cannot easily meet in person. How can we leverage social and professional networking platforms such as Facebook, and LinkedIn, and how can we leverage and expand our own local systems such as http:&#amp;#59;amp;#254;;engs.ece.torontoconnect.ca and the ECE496 registration system, https:&#amp;#254;;amp;#254;;ece496v2.ece.toronto.edu, to more effectively connect our students to each other as well as to our alumni, faculty, and the greater community? This project is co-supervised by Professors Khoman Phang and Baochun Li.

OPEN Dislike

Figure 9.b: The POST request for unliking a project sent from frontend to backend

Figure 9.c: Result of unlike a project in the project profile page

The information in the database will be updated, and the project will be removed from liked projects list.

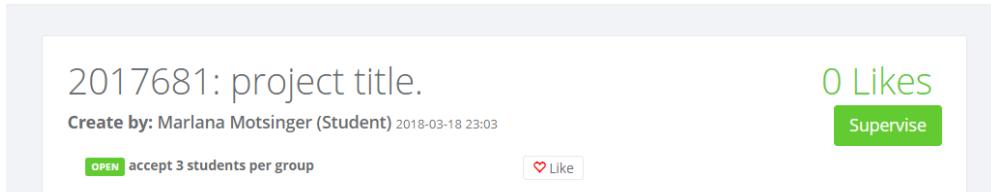


Figure 10.a: Result of claim a project by professor

```
uid: 54 pid: 2017681          projectDetail.component.ts:89
► {user_id: 54, project_id: 2017681}  project.service.ts:141
```

```
postClaimProject: null          project.service.ts:143
```

Figure 10.b: The POST request for claiming project sent from frontend to backend

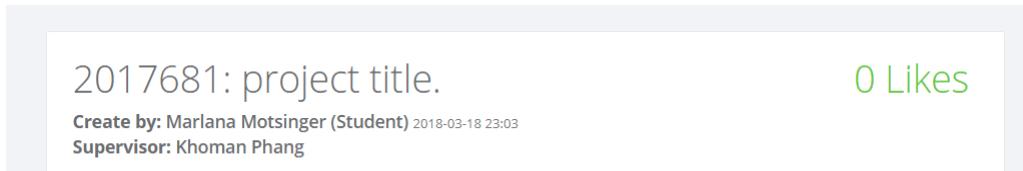


Figure 10.c: Result of claim a project by professor

Professors are able to claim projects by clicking the supervise button. The information on the project details

Discussion

Tarek Abdelrahman 2018-03-18 16:52
first comment to project2017668

Farid Najm 2018-03-18 16:52
second comment to project2017668

This is a new comment to project 2017668.

Post

5 Likes
Supervise

page will
be
updated
with the
supervisor
informatio
n.

```

new comment: This is a new comment projectDetail.component.ts:74
to project 2017668. . uid: 54 pid: 2017668
▶ Object project.service.ts:103
GETUSER ▶ Object user.service.ts:40
postComment: null project.service.ts:105

```

Figure 11.a: Result of adding a comment in a project (Before commenting)

Figure 11.b: The POST request for adding comment sent to backend from frontend

The screenshot shows a project details page for "2017668: Smart Cleaning Robot". The page includes a summary, related areas, and a discussion section. In the discussion section, there are three comments from users Tarek Abdelrahman, Farid Najm, and Khoman Phang. A text input field for posting a new comment is present, along with a "Post" button.

Discussion

- Tarek Abdelrahman 2018-03-18 16:52
first comment to project2017668
- Farid Najm 2018-03-18 16:52
second comment to project2017668
- Khoman Phang 2018-03-18 21:24
This is a new comment to project 2017668.

Your comment...

Post

Figure 11.c: Result of adding a comment in a project

Users are able to add comments under each project, and the comments will be displayed in the project details page.

The screenshot shows a project search interface. On the left, there are advanced filters for 'Users', 'Teams', and 'Projects' (which is selected). There are also filters for 'Last activity' (with a date range selector), 'Project Size' (with a slider), 'Status' (with 'Open' checked), and 'Areas' (with 'Software' checked). The search bar at the top contains the text 'machine learning'. The results list several projects:

- A Machine Learning Approach to Interacting with Large Format Screens (Software) - Last activity: 2018-03-18 16:51
- A Machine Learning Approach to Interacting with Large Format Screens (Software) - Last activity: 2018-03-18 16:51
- EMG to hand kinematics model (Software Natural Language Computing) - Last activity: 2018-03-18 16:51
- EMG to hand kinematics model (Software Natural Language Computing) - Last activity: 2018-03-18 16:51
- Machine Learning-Based Prediction of Currency Movements (Database GPU Programming on the Web Chatbot Software) - Last activity: 2018-03-18 16:51
- Machine Learning-Based Prediction of Currency Movements (Database GPU Programming on the Web Chatbot Software) - Last activity: 2018-03-18 16:51
- Smart Cleaning Robot (Software Analog Electronics VLSI AI Chatbot) - Last activity: 2018-03-18 16:51
- Smart Cleaning Robot (Software Analog Electronics VLSI AI Chatbot) - Last activity: 2018-03-18 16:51

Figure 12: Result of project search page with filters applied and keywords typed

Project listing page is functionally, users are able search and filter projects using the search bar and filters. Additionally, frontend is able to retrieve from the first project to the last project in the database.

```
project.service.ts - project.service.ts:59
getRecommendedProject:
[{"project_id":2017600,"project_title":"Wireless video
transmission using approximate computing for IOT
devices","project_status":"Open","project_short_description":"
Mobile devices are a concern, however, wireless
devices would be limited by performance metrics such as power
consumption (battery) and latency when streaming video. To
improve an IOT device that needs to receive and transmit video
wirelessly, this project will use approximate computing concepts
to make hardware&#2F&#59software modifications that will
trade some accuracy to optimize for power consumption and
latency."}, {"project_id":2017609,"project_title":"Developing
novel algorithms to assess sleep
quality","project_status":"Open","project_short_description":"
Our project is to develop novel signal processing algorithms to
analyze physiological signals to assess sleep quality and
predict the risks of poor sleep quality and excessive daytime
sleepiness. The audience are mostly sleep apnea patients. Sleep
apnea is a sleep disorder characterized by pauses in breathing
or periods of shallow breathing during sleep. When it happens,
the patient would be woken up unconsciously during sleep by the
brain to recover the respiration process and to restore oxygen
level. This will dramatically decrease one&#39s sleep quality
and further induces complications such as diabetes and heart
attack. The project will go over the workflow of research from
data collecting to algorithm development. We will be using PSG
to collect patients&#39 data and use Matlab for signal
processing. Lastly, we will use machine learning algorithm to
classify sleeping status and to detect the occurrence of sleep
apnea. We will work in a multidisciplinary team of engineers,
physicians, and an industrial partner."}, {"project_id":2017584,"project_title":"Can your pupils show your
emotions?","project_status":"Open","project_short_description":"
Studies have shown that our pupils dilate when we are looking at
something interesting or appealing or better say when something
is emotionally engaging. This project will implement a remote
video system which will track changes in the pupil size to
detect changes in the emotional status of individuals. The
system will be tested under a number of controlled experiments
as well as in uncontrolled situation in order to determine its
feasibility and potential for real life applications (e.g.,
impulsive shoppers or live game players.)"}]
```

Figure 13.a: Recommended projects got from backend API

Khoman Phang 2018-03-18 21:24
This is a new comment to project 2017668.

Your comment...

Post

Recommended Projects

Wireless video transmission using approximate computing for IOT devices OPEN

Mobility of wired VR devices is a concern, however, wireless devices would be limited by performance metrics such as power consumption (battery) and latency when streaming video. To improve an IOT device that needs to receive and transmit video wirelessly, this project will use approximate computing concepts to make hardware/;software modifications that will trade some accuracy to optimize for power consumption and latency.

Developing novel algorithms to assess sleep quality OPEN

Our project is to develop novel signal processing algorithms to analyze physiological signals to assess sleep quality and predict the risks of poor sleep quality and excessive daytime sleepiness. The audience are mostly sleep apnea patients. Sleep apnea is a sleep disorder characterized by pauses in breathing or periods of shallow breathing during sleep. When it happens, the patient would be woken up unconsciously during sleep by the brain to recover the respiration process and to restore oxygen level. This will dramatically decrease one's sleep quality and further induces complications such as diabetes and heart attack. The project will go over the workflow of research from data collecting to algorithm development. We will be using PSG to collect patients' data and use Matlab for signal processing. Lastly, we will use machine learning algorithm to classify sleeping status and to detect the occurrence of sleep apnea. We will work in a multidisciplinary team of engineers, physicians, and an industrial partner.

Figure 13.b: Result of recommended projects for users under a project

The recommended projects for users are located below discussion area under each project.

Users are able to see similar projects in every project details page.

PROJECTS

Search projects by project id, supervisor name...(seperated by space)

Please wait while we are loading projects :)

Figure 14.a: Message shown when the system is loading.