A Better Online Future

Building a Global, User Centered Academic Community While Preserving Intellectual Property

AGORA

"We should not trust the masses that say only the free can be educated, but rather the lovers of wisdom that say only the educated can be free". - Epictetus

Disclaimer

This is intended to be a discussion, generate feedback and ideas to help guide the project.

Agenda

- What is Agora
- Goals and Challenges
- Regulation, copyright and collaboration - Balancing act
- Data Stewardship as a Public Service?
- Demo / Discussion

Purpose

An open, free learning and research platform that improves users learning and research experience by offering a single organizational structure, suggesting resources, and collaborations.

What does it do?

Allows users to keep notes, assignments, projects, be assigned work and collaborate with teachers and other researchers without being tied to any specific institution.

Built on **Resources** (Notes, Links, documents, etc)

Grouped by **Topics** (Resources, assignments, activities)

And **Goals** (groupings of topics)

Utilizing **Tags** (categorization, organization)

Resource

Editor

Name:

Little Man Computer Instruction Set

Desciption:

Full instruction set for the LMC (Little Man Computer) ISA (Instruction Set Architecture)

Image:

Upload an image for this resource (1MB Max size)

Browse... LMC-Little Man.png

Resource Content:

Normal

Little Man Computer (LMC) Instruction Set:

Op Code	Operand	Mnemonic / Assembly
1	XX	ADD XX
2	XX	SUB XX
3	XX	STA XX
5	XX	LDA
6	XX	BRA XX
7	XX	BRZ XX
8	XX	BRP XX
9	01	INP
9	02	OUT
0	00	HLT

Embedded HTML:

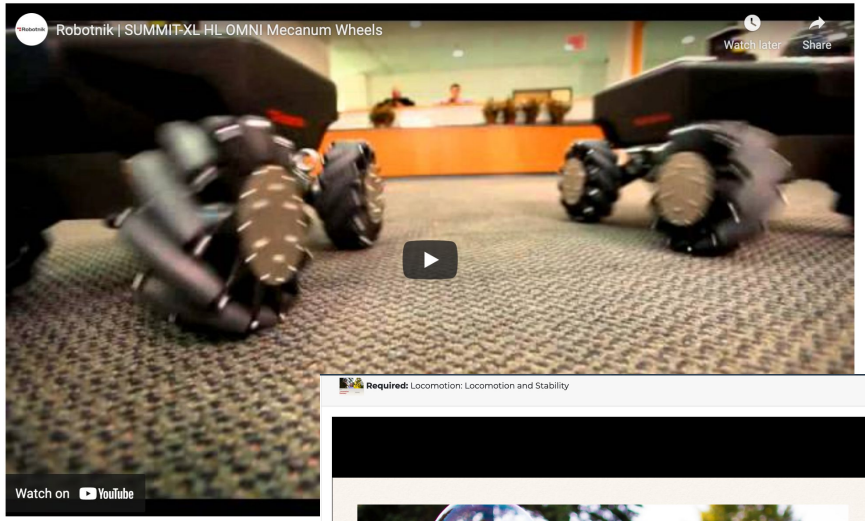
Resource Link:

https://en.wikipedia.org/wiki/Little_man_computer

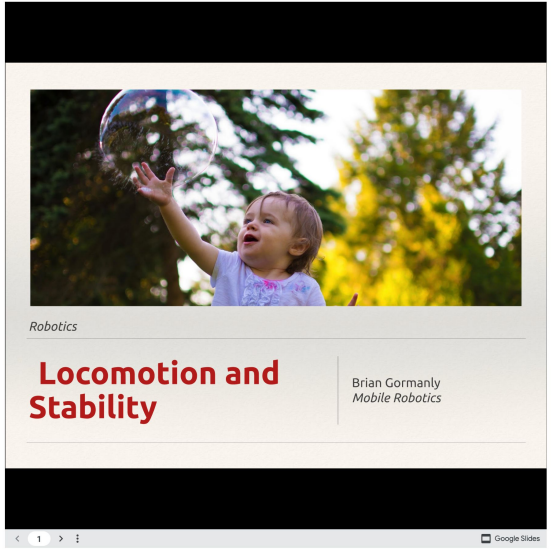
Required? Active:

Save Information

Optional: Locomotion: Mecanum wheels video



Required: Locomotion: Locomotion and Stability



Resources +

Choose the resources that will associted with the topic

Drag and drop from available resources and re-arrange the order of chosen resources

Available Resources:

Locomotion: Locomotion and Stability
Required?

Locomotion: Legged
Required?

Locomotion: Aerial Robots
Required?

Locomotion: Manipulation, Effectors, Joints and Kinematics
Required?

Selected Resources:

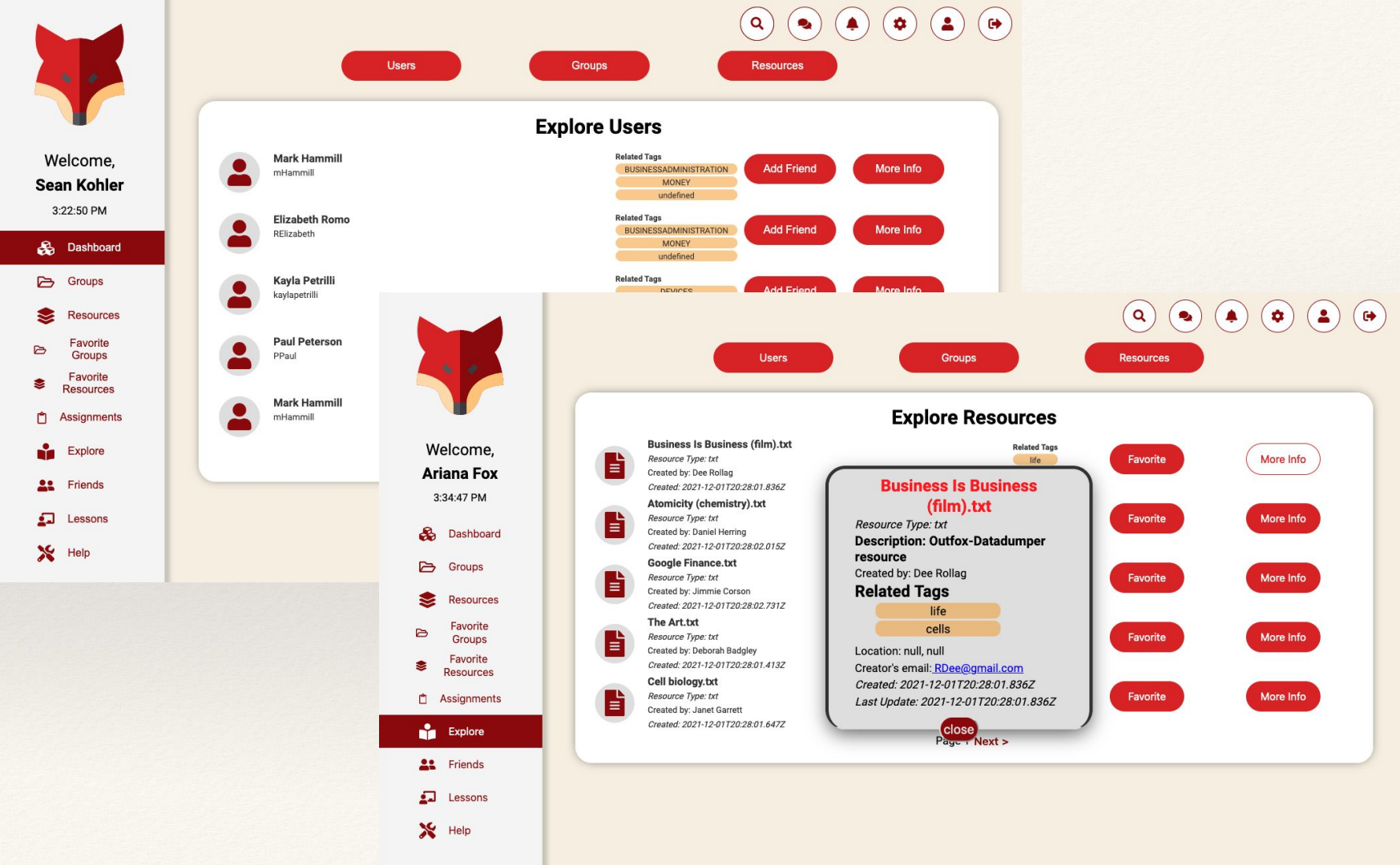
Robotics Programming Video Series Episode 1
Required?

Locomotion: Wheeled Robots
Required?

Students, Researchers and Teachers

Students / Researchers collect resources as they work, and also have resources shared with them (and suggested to them based on work others are completing that the system finds)

*There is already a v1 AI recommendation engine built by a 2021 capping group


Users
Groups
Resources
Explore Users
Mark Hammill
mHammill
Elizabeth Romo
RElizabeth
Kayla Petrilli
kaylapetrilli
Paul Peterson
PPaul
Mark Hammill
mHammill
Related Tags
BUSINESSADMINISTRATION
MONEY
undefined
Add Friend
More Info
Welcome,
Sean Kohler
3:22:50 PM
Dashboard
Groups
Resources
Favorite Groups
Favorite Resources
Assignments
Explore
Friends
Lessons
Help
Users
Groups
Resources
Explore Resources
Business Is Business (film).txt
Resource Type: txt
Created by: Dee Rollag
Created: 2021-12-01T20:28:01.836Z
Atomicity (chemistry).txt
Resource Type: txt
Created by: Daniel Herring
Created: 2021-12-01T20:28:02.015Z
Google Finance.txt
Resource Type: txt
Created by: Jimmie Corson
Created: 2021-12-01T20:28:02.731Z
The Art.txt
Resource Type: txt
Created by: Deborah Badgley
Created: 2021-12-01T20:28:01.413Z
Cell biology.txt
Resource Type: txt
Created by: Janet Garrett
Created: 2021-12-01T20:28:01.647Z
Related Tags
life
Favorite
More Info
Business Is Business (film).txt
Resource Type: txt
Description: Outfox-Datadumper resource
Created by: Dee Rollag
Related Tags
life
cells
Location: null, null
Creator's email: RDee@gmail.com
Created: 2021-12-01T20:28:01.836Z
Last Update: 2021-12-01T20:28:01.836Z
close
Page 1 Next >
Welcome,
Ariana Fox
3:34:47 PM
Dashboard
Groups
Resources
Favorite Groups
Favorite Resources
Assignments
Explore
Friends
Lessons
Help

Publication

Anyone can publish goal, topics and resources to share in a ‘classroom’. Students see shared resources from teachers, can participate in assessments and activities. They can also group related resources from other sources and ones they have already collected on the instructors topic

Topics promote a built in pre / post assessment for shared topics. These help educators evaluate the effectiveness of the content.

‘Taking a topic’

Back to Community Home

Goal: Mobile Robots (Marist Class Testing)

Path to goal completion

Mobile Robotics: Localization

Mobile Robotics: Sensors and Perception

Back to Goal [Enrolled]

Topic: Mobile Robotics: Localization

- Done — Introduction
- To Do — **Pre-Assessment**
- To Do — Resources
- To Do — Activity
- To Do — Post-Assessment
- Summary

Pre-Assessment

Being dynamically stable means that:

- (•) You must actively balance or move to remain stable
- ( ) Stability is dependant on outside factors
- ( ) The robot is only stable if it has wheels
- ( ) I don't know

A polygon of support is:

- ( ) A dynamic shape used for the robot body
- (•) The area covered by the ground points
- ( ) The term for a legged robots leg design
- ( ) I don't know

A legged robot consumes

- (•) more energy then a wheeled one
- ( ) less energy then a wheeled one
- ( ) I don't know

A 2 legged robot or animal has ___ # of gaits

- ( ) 1
- ( ) 2
- (•) 6
- ( ) 10
- ( ) I don't know

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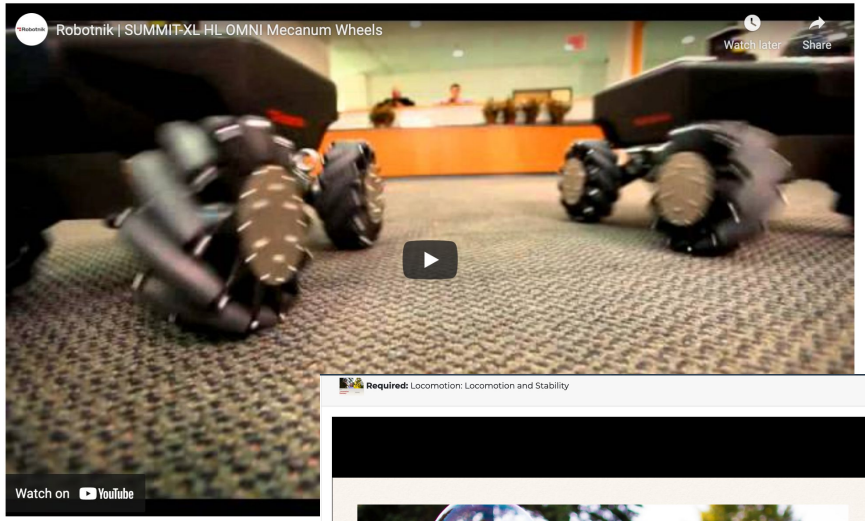

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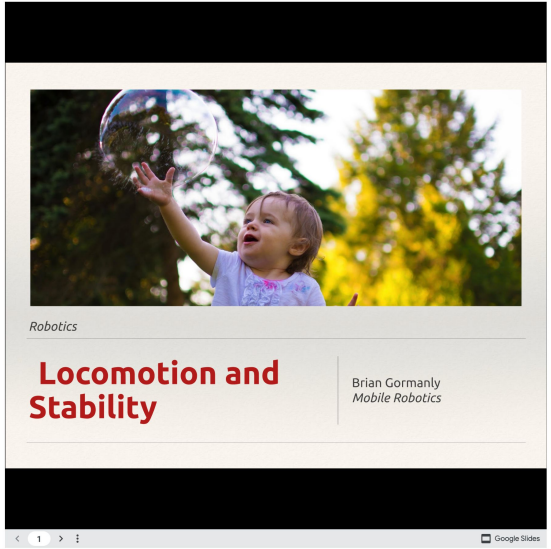

Topic: Mobile Robotics: Localization

A Robot that can see with it's ears

Add your first sensor, an ultrasonic sensor to your robot and use it determine distance by converting the time of flight using the speed of sound

The first part of the lab includes adding the HC-SR04 ultrasonic sensor to your robot and successfully producing in CM in the serial monitor. Follow along with part 1 of the lab video. I will be providing 1 sensor in class on Monday. I will provide you 4 wires, but you will be responsible for correct wiring (the video has a guide).

Each person will complete this lab individually!

Submission for this lab includes:

- Your code either as pasted text or attached .ino file.
- A picture of your robot placed 12" away from a wall with some sort of measuring tool (a ruler is sufficient) and the accompanying screenshot of your serial monitor showing the distance reported. If there are any deviations for your robot from the ~30.5 cm report why you think you are seeing the results you are.

Submit Activity

Normal B I U

submit

Topic: Mobile Robotics: Localization

Here is your topic summary

Your Pre Assessment Answers:

Being dynamically stable means that:
- (x) You must actively balance or move to remain stable
- ( ) Stability is dependant on outside factors
- ( ) The robot is only stable if it has wheels
- ( ) I don't know

A polygon of support is:
- ( ) A dynamic shape used for the robot body
- (x) The area covered by the ground points
- ( ) The term for a legged robots leg design
- ( ) I don't know

A legged robot consumes
- (x) more energy then a wheeled one
- ( ) less energy then a wheeled one
- ( ) I don't know

A 2 legged robot or animal has ___ # of gaits
- ( ) 1
- ( ) 2
- (x) 6
- ( ) 10
- ( ) I don't know

An omni-directional robot is the same is the same as a holonomic robot
- (x) true
- ( ) false
- ( ) I don't know

The biggest problem engineers building aerial robots have to overcome is:
- ( ) Motor speed providing lift
- (x) weight of the robot
- (x) Aerodynamic forces and winds
- ( ) I don't know

Determining the mathematics to get the robot to a particular point is space is known as
- (x) Inverse kinematics
- ( ) localization
- ( ) go to goal behavior
- ( ) I don't know

Total Questions: 7 - Total correct: 5 - Percent Correct: 71.4%

Your Post Assessment Answers:

Being dynamically stable means that:
- (x) You must actively balance or move to remain stable
- ( ) Stability is dependant on outside factors
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Total Questions: 7 - Total correct: 7 - Percent Correct: 100.0%

Congratulations! You have successfully completed this topic and are ready to move on! You also achieved a better score on your post-assessment than on your pre-assessment. Your score improved by 28.6%

Back to Goal

Projects Goals

- User, not institution centric
- Accessible: Free and open source
- Collaborative: All users control what they share (not centralized)
- Dynamic: Organization and community structure

Not an LMS

While many use-cases could overlap, this is not an LMS by the standard definition.

Takes the opposite approach to solve many of the same problems. In the end when feature complete enough it may be a substitute for LMS use cases

Hope

Offers the required data privacy and protections that users and institutions will trust using it.

Balance the requirement to retain intellectual property and protect user data with the benefits in AI recommendations / Collaboration brought by a centralized platform

So how?????????

Challenges

- Protection of Data
  - Ensuring sustainable business model
    - Non-profit
    - Public service
  - Ensuring users are able to protect and share data as they see fit, finding the correct balance of collaboration and intellectual property protections
- Maintaining a forward looking (as much as possible, a technology agnostic) perspective

The question of data rights

One of the most existential questions of the modern web is how online companies should generate revenue

Benevolence is not sustainable (remember “Don’t be evil”?)

Two-pronged Approach

1. Data stewardship as a public service
2. Blockchain / Web 3 technologies

Public Service

1 : the business of supplying a commodity (such as electricity or gas) or service (such as transportation) to any or all members of a community

2 : a service rendered in the public interest

"Definition of PUBLIC SERVICE". *www.merriam-webster.com*. Retrieved 2022-06-06.

A Public Digital Data Library?

There are many public services we can look to for precedent including public education, public broadcasting, telecommunications, and more, but…

The public library is perhaps the best and most relevant example in the context of cloud based user generated content.

Public Library

There are five fundamental characteristics shared by public libraries:

1. they are generally supported by taxes (usually local, though any level of government can and may contribute);
2. they are governed by a board to serve the public interest;
3. they are open to all, and every community member can access the collection;
4. they are entirely voluntary in that no one is ever forced to use the services provided;
5. they provide basic services without charge.

Wikipedia contributors. (2022, June 1). Public library. In *Wikipedia, The Free Encyclopedia*. Retrieved 16:02, June 6, 2022, from https://en.wikipedia.org/w/index.php?title=Public_library&oldid=1090921278

Public Data Stewardship?

Perhaps something similar can work here:

1. Supported by ??? (more on this later)
2. governed by a board to serve the public interest
3. open to all, and every community member can access ~~the collection~~ publicly available content;
4. they are entirely voluntary in that no one is ever forced to use the services provided;
5. they provide ~~basic~~ services without charge.

New:

1. Provide or utilize a standard format for data retrieval from the system
2. Provide environment conducive maintaining intellectual property rights

Funding

1. Tax payers / Grants / donations
2. Sponsorship underwriting? (public broadcast model)

Blockchain / Web3

Step 2 will be to utilize blockchain and other web3 technologies.

Move towards having the user's data be truly decentralized on a blockchain using individual wallets

Smart contracts and DAOs may be leveraged

*Spring 22 evaluation

Next steps

Research / Create Non-Profit for Data Stewardship

Research possible decentralization utilizing web3 technologies

Continue development of the main web application!

Grant / Funding

The Things I can Control