



Adam Thomas

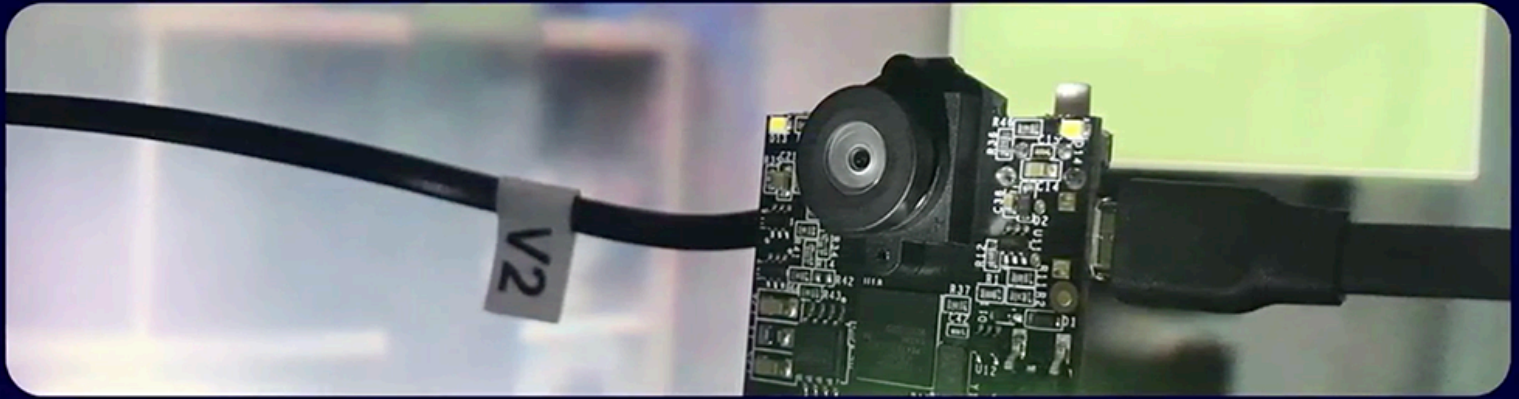
**I Teach Code!**

Self-taught full-stack developer.

Learning code and teaching code at Humber Polytechnic, Toronto, Canada.



# BrickMMO Receives Innovation of the Year Award



The BrickMMO project receives the Innovation of the Year award from the [League for Innovation in the Community College](#) representing Humber Polytechnic

Resources: [League of Innovation](#) | [BrickMMO](#)

Date: June 10th, 2024

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## Innovations 2024 - League for Innovation



## SUMMARY

The BrickMMO Smart City provides students with a physical sandbox to apply their trades, collaborate with students from other programs, and learn through play.

### QUESTIONS

What will post-secondary student perceptions be when using a LEGO® constructed smart city to simulate real-life application of programming concepts?

How do students feel about the inclusion of LEGO® in post-secondary programming classes?

How does the use of a LEGO smart city affect coding accessibility?



## RESULTS



100,000+ lines of code  
70% written by students



400+ pounds of LEGO®



\$85,000+ in funding



200+ students  
4000+ hours of participation

LEGO, the LEGO logo and the Minifigure are trademarks of the LEGO Group.  
LEGO® is a trademark of the LEGO Group of companies which does not sponsor, authorize or endorse this project.

## PROJECTS

### AI GENERATED RADIO STATION

Radio station using Open AI and Google Text-to-Speech AI.  
20 Students | 1 Capstone | 1 Hackathon  
Radio Broadcasting  
Web Development



### GPS

Working GPS system using the LEGO® Mindstorms EV3 and Pixy2 cameras.  
4 Students | 1 Capstone Project  
Web Development



### WIRELESS CHARGING

Wireless charging stations using the LEGO® Spike, LEGO® Essentials, and student designed inductive charging pads.

4 Students | 4 Paid Student Positions  
Web Development  
Electrical Engineering

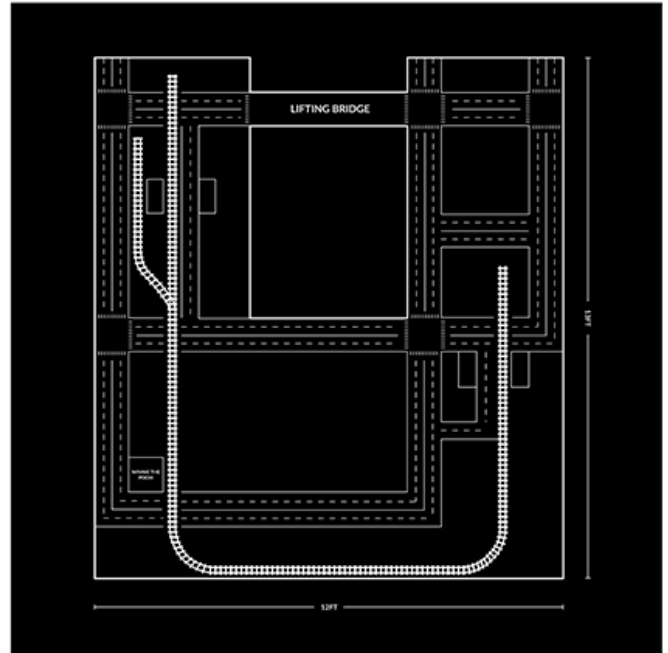


### OTHER PROJECTS

- Autonomous Driving Cars
- Lifting Bridge/Traffic Systems
- Automated Trains and Tracks
- Financial System/Blockchain
- Automated Fulfillment System



70%  
Found working with the Smart City applicable to real world situations.



80%  
Found working with the Smart City their most engaging activity.

“ We had the freedom to brainstorm original ideas, be creative, and see our ideas through to completion. ”



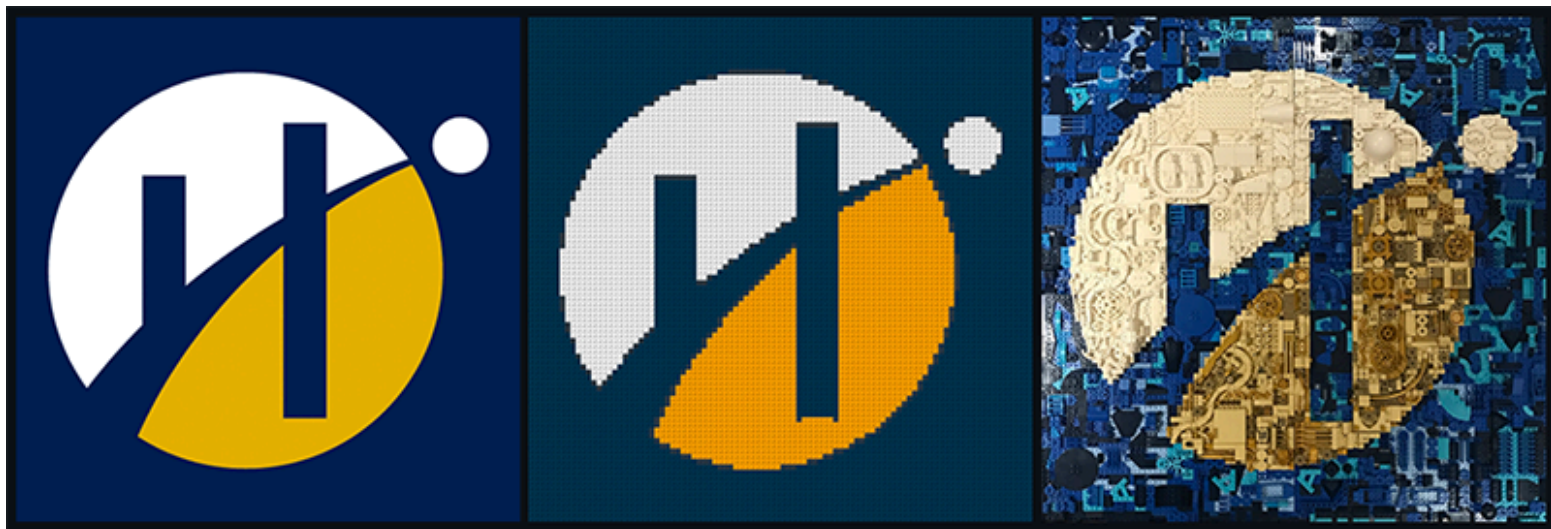
BrickMMO is a collaborative project between Humber College and BrevisReforo.

Ran a workshop called Smart City built with LEGO Bricks at the [League for Innovation](#) conference in Pine Grove, California, USA.

Resources: [Innovations 2024](#)

Date: March 18th, 2024

## Humber Logo and LEGO Greeble







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## LEGO® Smart City

**BRICKMMO**



A Smart City built entirely using LEGO®. This city is used as a playground to learn code and develop systems such as GPS, a power grid, street view, wayfinding/mapping, and autonomous driving vehicles from scratch.

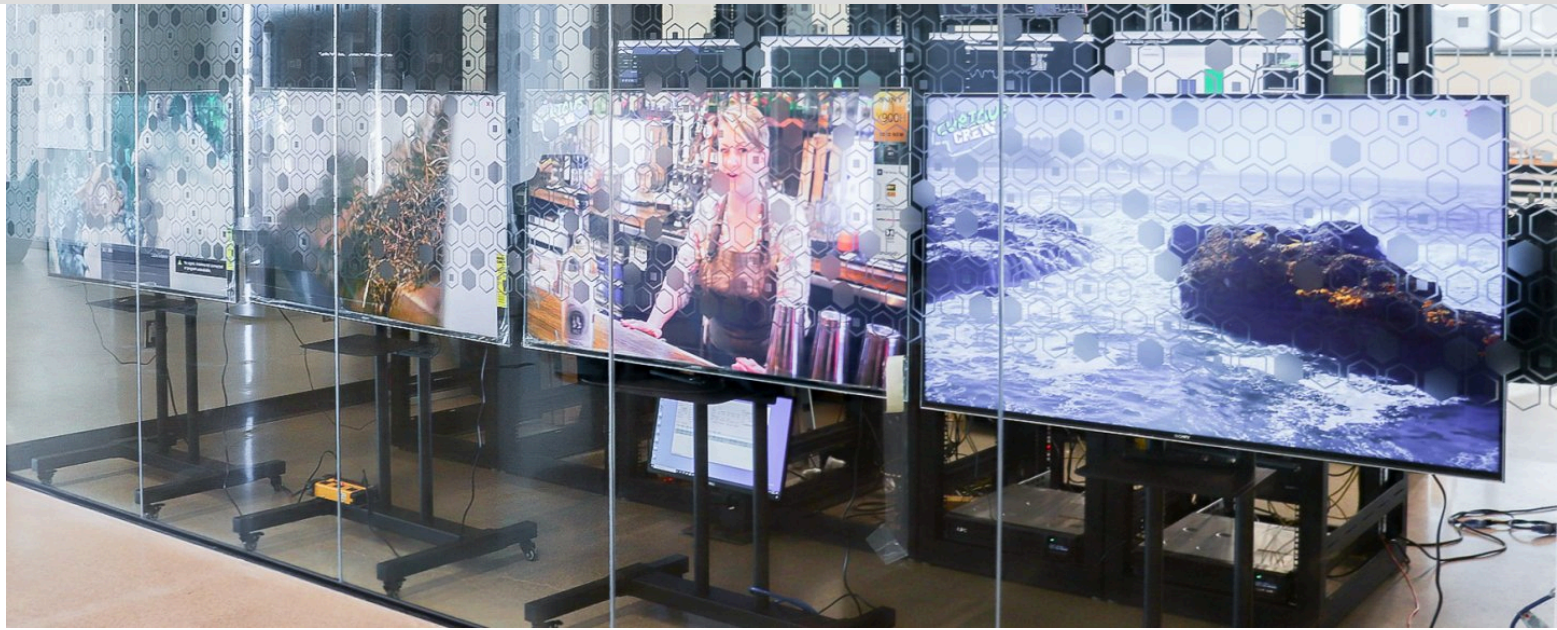
This research project is looking at post-secondary student perspective on using LEGO to learn code. It is funded by the [Humber Cultivate Research and Innovation Fund](#).

Resources: [BrickMMO](#) | [BrickMMO Hubs Python](#) | [BrickMMO Hackathon Results](#) | [Humber Cultivate Research and Innovation Fund](#)

Date: November 21st, 2022

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## Humber B<sup>2</sup>C Lab

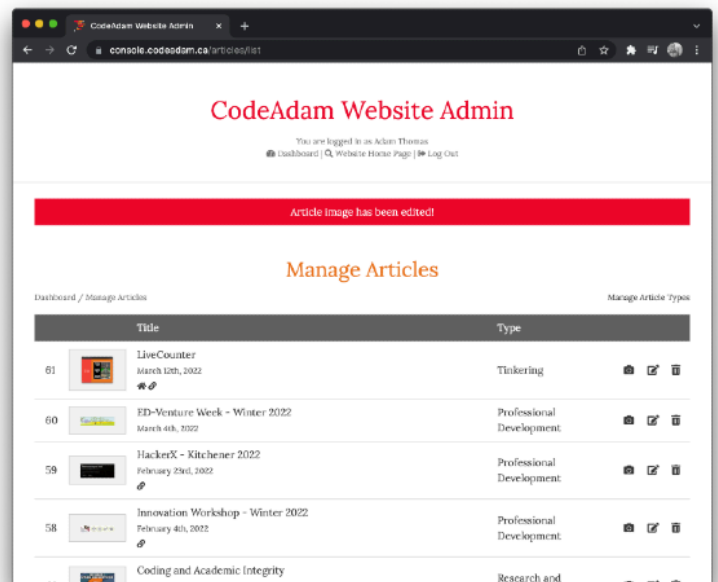
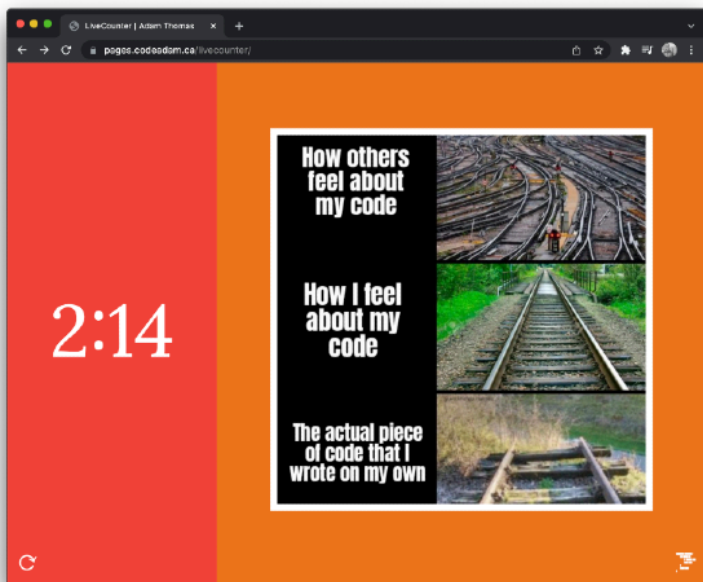


Humber Polytechnic has established a Broadcast-Broadband Convergence B<sup>2</sup>C Lab to explore the Advanced Television Systems Committee (ATSC) 3.0 television broadcast standard. This is the first of its kind in Canada.

Resources: [Humber B<sup>2</sup>C Lab](#)

Date: October 12th, 2022

## LiveCounter

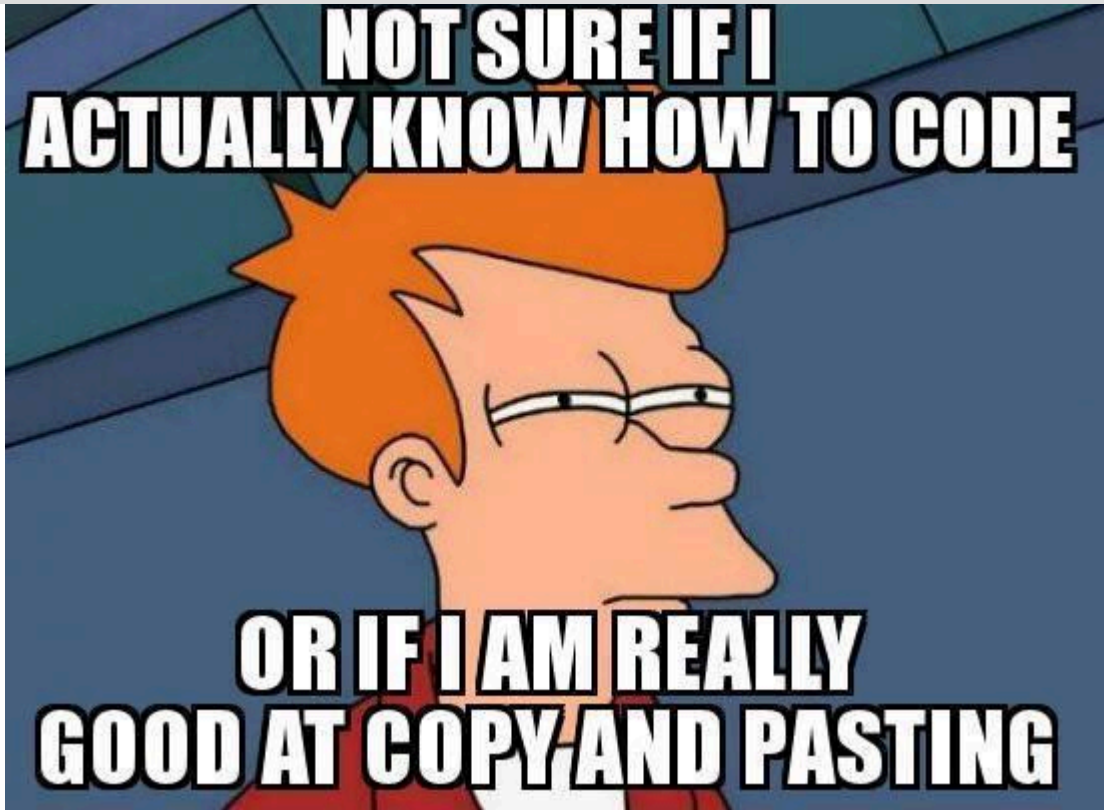


A web based application to automatically generate a timer and a slideshow of related programming memes based on the class topic. This application is used as a countdown time before class starts or during in-class lab time.

Resources: [LiveCounter](#)

Date: March 12th, 2022





Created an online asynchronous course on coding, plagiarism, and academic integrity.

This course reviews the circumstances in which code can and cannot be copied, how to properly cite code, and the difference between common licenses (MIT, Creative Commons, etc...).

Resources: [Academic Integrity](#)

Date: November 16th, 2021

## LiveCode Visual Code Studio Extension

```
1 <?php
2
3 $connect = mysqli_connect('localhost', 'root', 'root', 'sandbox');
4
5 $email = isset($_POST['email']) ? $_POST['email'] : '';
6 $message = isset($_POST['message']) ? $_POST['message'] : '';
7
8 $email_error = '';
9 $message_error = '';
10
11 if (count($_POST))
12 {
13     $errors = 0;
14
15     if ($email == '')
16     {
17         $errors ++;
18         $email_error = 'Please enter an email address';
19     }
20
21     if ($message == '')
22     {
23         $errors ++;
24         $message_error = 'Please enter a message';
25     }
26 }
```

```
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19     }
20
21     if ($message == '')
22     {
23         $errors ++;
24         $message_error = 'Please enter a message';
25     }
26
27     if ($errors == 0)
28     {
29         $query = 'INSERT INTO contact (
30             email,
31             message
32         ) VALUES (
33             "' . addslashes($email) . '",
34             "' . addslashes($message) . '"
35         )';
36         mysqli_query($connect, $query);
37         $message = 'You have received a contact form submission';
38     }
39
40     Email: '$email,'
41 }
```



The LiveCode extension is available in the [Visual Studio Code Marketplace](#).

Resources: [Visual Studio Code](#) | [LiveCode Visual Studio Code Plugin](#)

Date: October 10th, 2020

## A Case Study of Pedagogical Approaches Teaching Code in Postsecondary Education



Conducting a research project in the Winter semester of 2020: [A Case Study of Pedagogical Approaches Teaching Code in Postsecondary Education](#).

Resources: [Humber Polytechnic](#) | [Otago Polytechnic](#) | [Otago University](#) | [VIA University College](#) | [Fontys](#) | [Juno College](#)

Date: February 27th, 2020

## Teaching Portfolio



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