

AgroEcology Hotspot Technology Analysis

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PROJECT GOALS



Research different micro-communication technologies that have the potential to be implemented on UMD's campus.



Recommend three of the most viable technologies and provide further direction for the next steps of this project.

Overview

Our project highlights the implementation of three technologies that aim to educate and encourage participation among students, faculty, and visitors as it pertains the wellness and sustainability of UMD.



Beacons



Push Notifications



Nature Signs





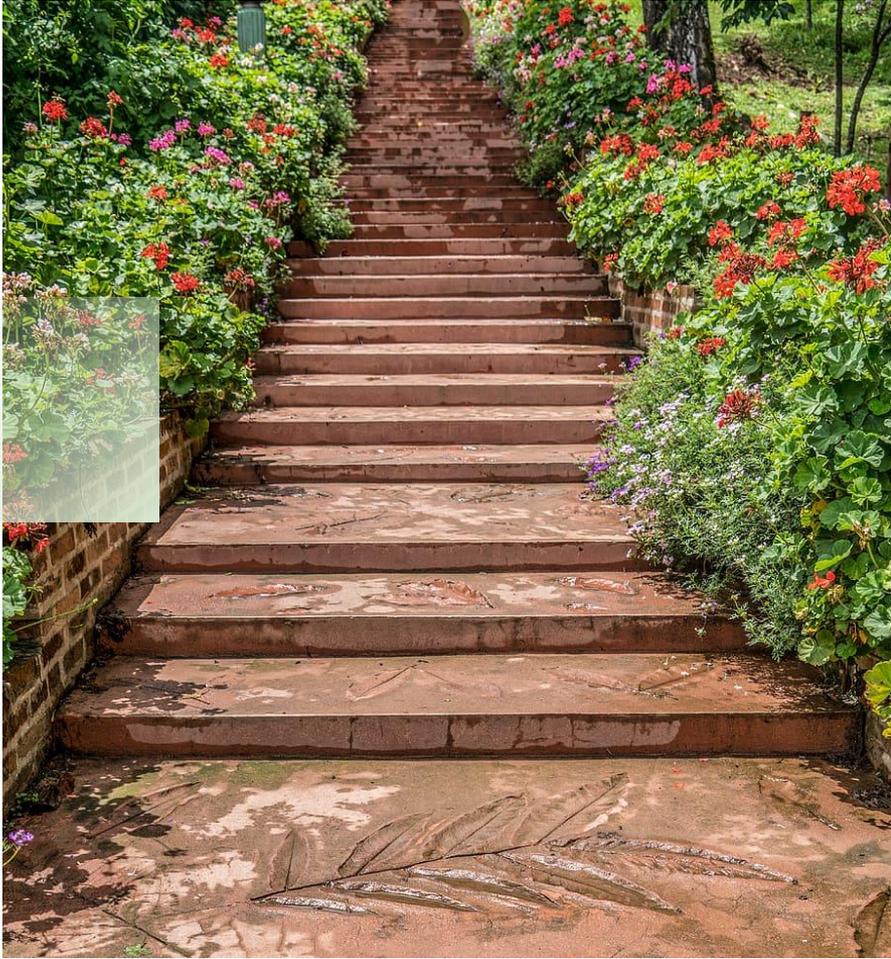
COLLEGE OF
AGRICULTURE &
NATURAL RESOURCES

The College of Agriculture and Natural Resources would like to stimulate conversations about sustainability, food security, and food supply within the University of Maryland.

**EXECUTIVE
SUMMARY**

Project Sections

1. An initial technology analysis that introduces the 8 different types of micro-communication technologies
2. Several use cases that consider possible applications and spaces on campus
3. Final recommendations for the top 3 technologies (beacons, push notifications, and nature signs)
4. Next steps for future groups to continue working this project.



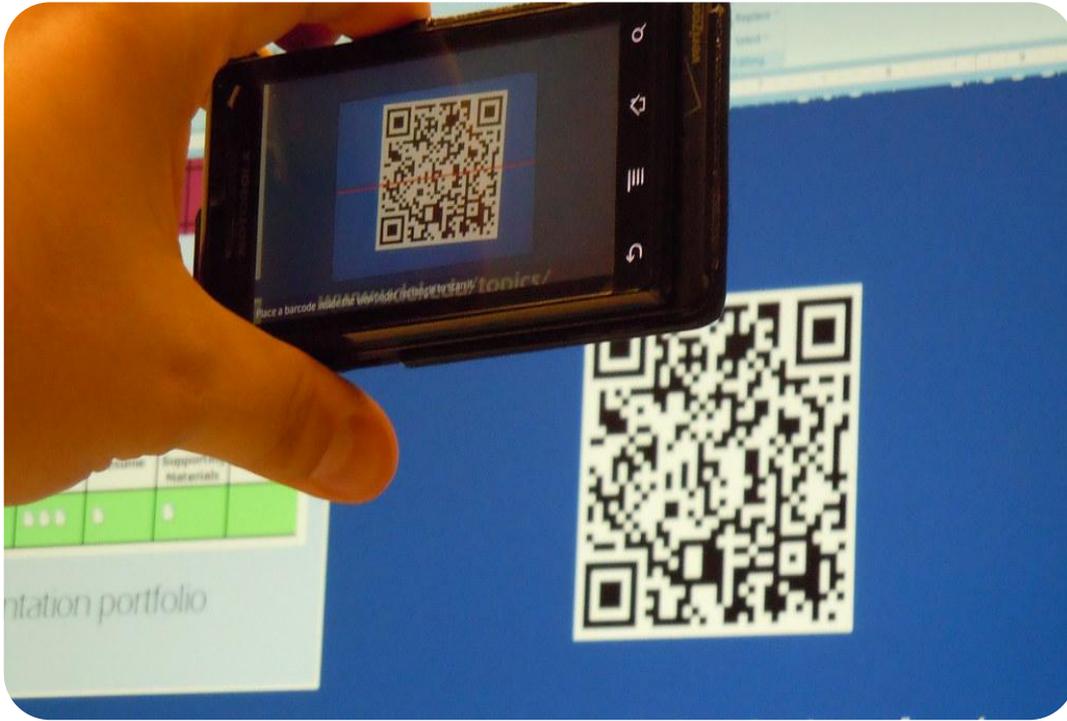
INITIAL RESEARCH ANALYSIS

Introduction and description of all eight chosen micro-communication technologies including estimated cost, advantages, and disadvantages



Bluetooth radio transmitters that send notifications to users when they are in a specified physical location

BEACONS



QR Codes, or Quick Response Codes, are scannable codes that store and present digital data

QR CODES



PUSH NOTIFICATIONS

Push notifications are messages sent directly to a user's phone, either through SMS or a corresponding app



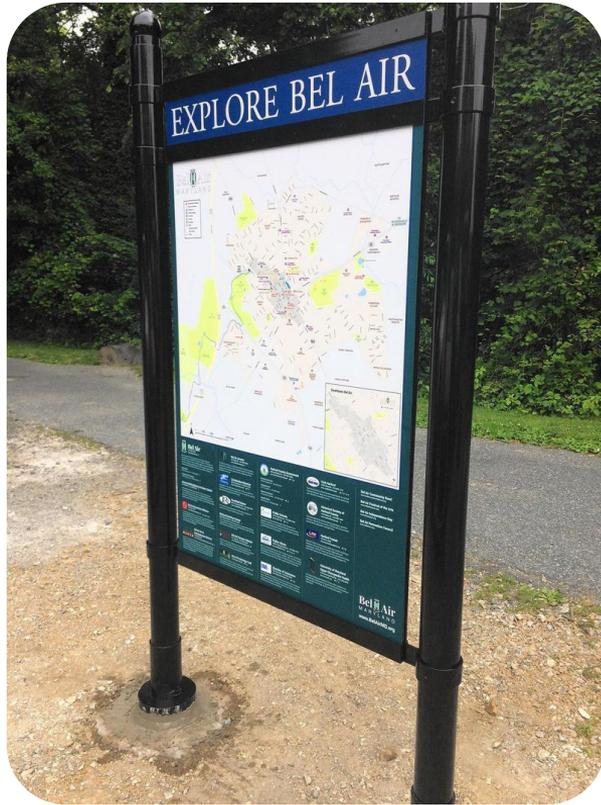
SOOFA SIGNS

Sustainable, solar-powered digital signs
that update in real time



An outdoor treasure hunt using GPS devices

GEOCACHING



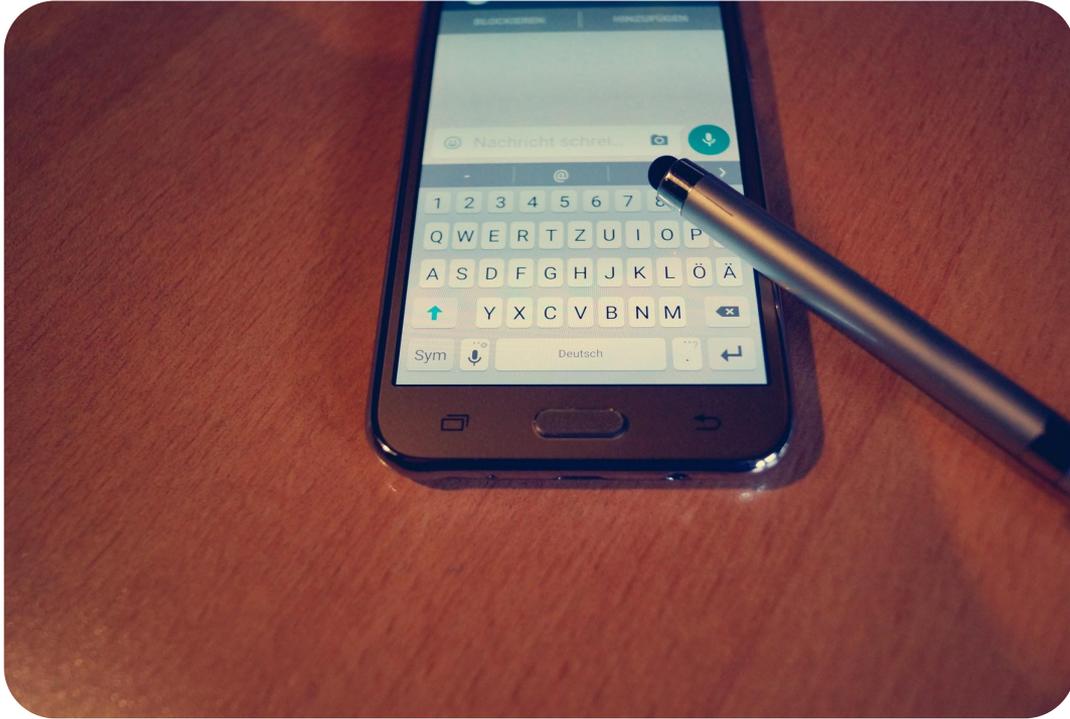
Typical trailhead and informational signs located in parks and natural areas



DIGITAL SIGNS

Signs with digital with LCD, LED,
and/or projection displays

CHATBOTS



A conversational computer program that
simulates human interaction with
computers



USE CASES

Description of specific use cases that take into consideration our recommended technologies, as well as their applications in different campus spaces.

UMD Community Learning Garden

- A place where students can come to learn more about UMD's sustainable practices
- **Nature signs** would be a great addition to the lessons that are taught here
- Would mesh well in the community garden and would be less likely to be damaged [\[1\]](#)



USE CASE #1

Nature Sign

User Flow

The signs would range different sizes.

User Interaction:

- the garden's different plants
- detail about why they were grouped together
- how the viewer could plant these at home
- Ways they are being used on campus
- how the user can communicate the plants' contribution to sustainability

UMD Wellness Center In Stamp

- High-traffic area
- A digital sign and **push notifications** would be a great way to engage many people
- **Digital signs** can be easily updated on a regular basis
- Push notifications can be sent to anyone that walks by the area [\[2\]](#)



USE CASE #2

Push Notification + Digital Sign

User Flow

User Interaction:

- User will receive a **notification** that encourages user to visit digital sign.
- User will be led to **interact** with the digital sign.
- User will be able to get so much information about the space that includes updates on the activity of sustainable use and ways to be environmentally friendly.

UMD Garden of Remembrance and Reflection

- Perfect setting to enlighten visitors on horticulture
- Ideal location for **nature signs** with **QR codes**
- Signs can be placed alongside the paths that run through the garden and near benches [\[3\]](#)



USE CASE #3

QR Codes + Nature Signs

User Flow

User Interaction:

- As user roams the garden, user will **visit** the nature sign which goes into detail about the plants. User can scan the QR Code for more detail.
- The user will be led to a sign that helps user learn more about the garden.

UMD Mckeldin Mall

- High-traffic location
- Ideal location for **push notifications** or **beacons** because users can see notifications on their phone even after they walk off the mall
- Signs would not be recommended [\[4\]](#)



USE CASE #4

Push notification + Beacons

User Flow

User Interaction:

- Notification and Beacon is dependent on location. Some users would receive push notifications anywhere throughout the mall. User's who are nearby certain places would receive a beacon notification.
- Either notification will lead user to go to a link or interact with a specific space.

UMD Tawes Plaza Garden

- High-traffic area
- **Soofa signs** would be great to reach out to lounging students and the community involved in the weekly farmer's markets
- **Push notifications** would reach out to passersby and visitors to the nearby buildings and dorms [\[5\]](#)



USE CASE #5

Soofa Signs + Push Notifications

User Flow

User Interaction:

- User would receive a notification that they are nearby a soofa sign.
- Soofa signs are automatically updated and easy to interact with.
- Soofa sign would provide user with information and pick up an impression
- Soofa signs gather impressions so one can see how popular a Soofa sign is.

FINAL RECOMMENDATIONS



Beacons

We decided on beacons given the **feasibility** of assisting individuals to interact within the environment.

Push Notifications

These are perfect for just keeping students/faculty/staff **aware** of what is in the environment.

Nature Signs

If individuals are interested much further, we believe that these nature signs would be their **golden ticket** to knowing much more!

NEXT STEPS

Exploration

A big part of the next steps are exploring the technologies in the desired spaces.



The next steps would be passing the torch along to the Agro-Corridor for implementation.

The Torch

Questions?

