



Engagement in Practice (EIP): An Engineering
Service-Learning Course in Collaboration with an
ART 2D Design Course to Serve Young People on the
Autism Spectrum Using the Touch Board™

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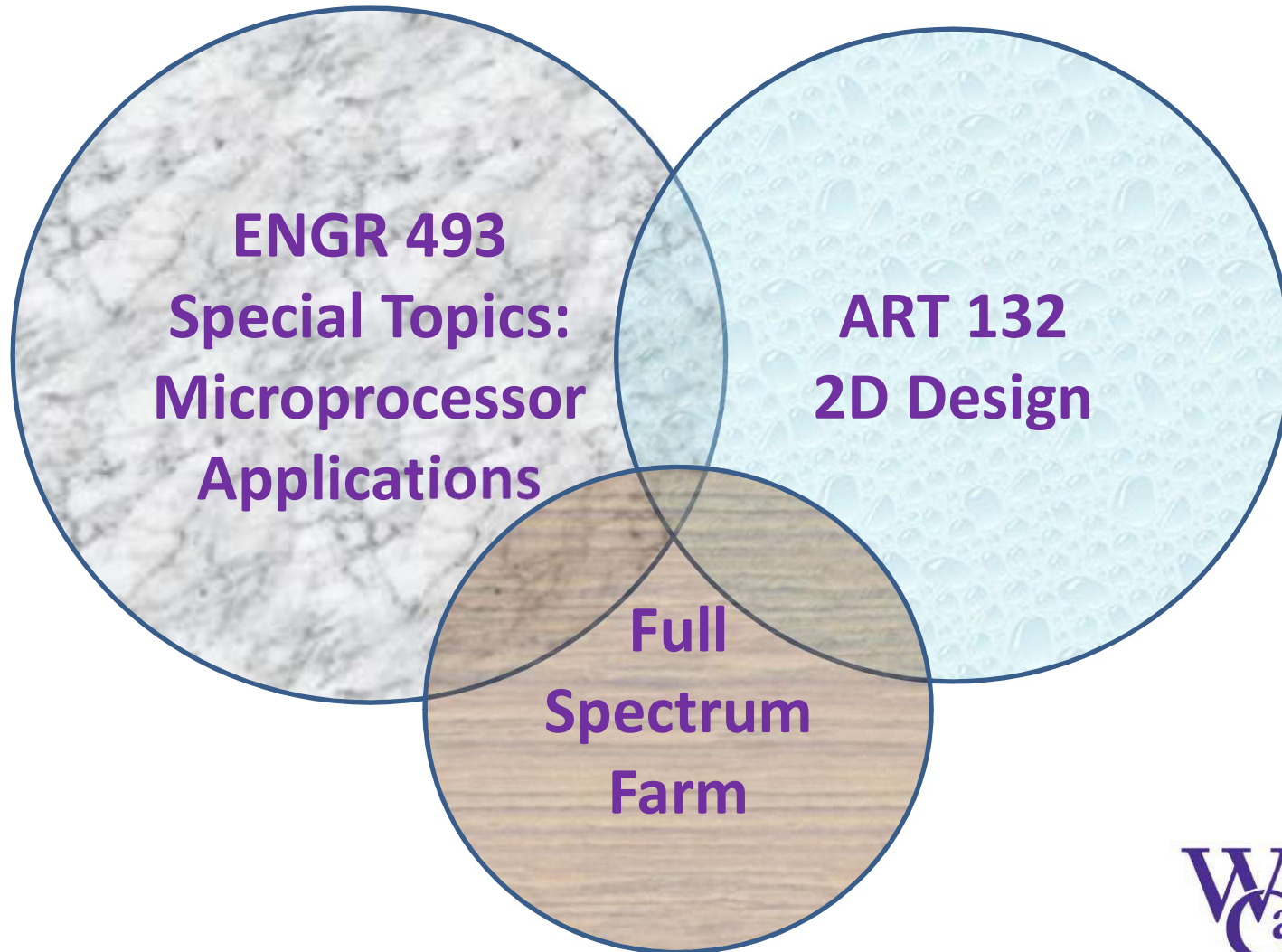
Outline

- Motivation and Evolvment of Project Ideas
- Project Description
- Project Progression
- Summary and Future Work

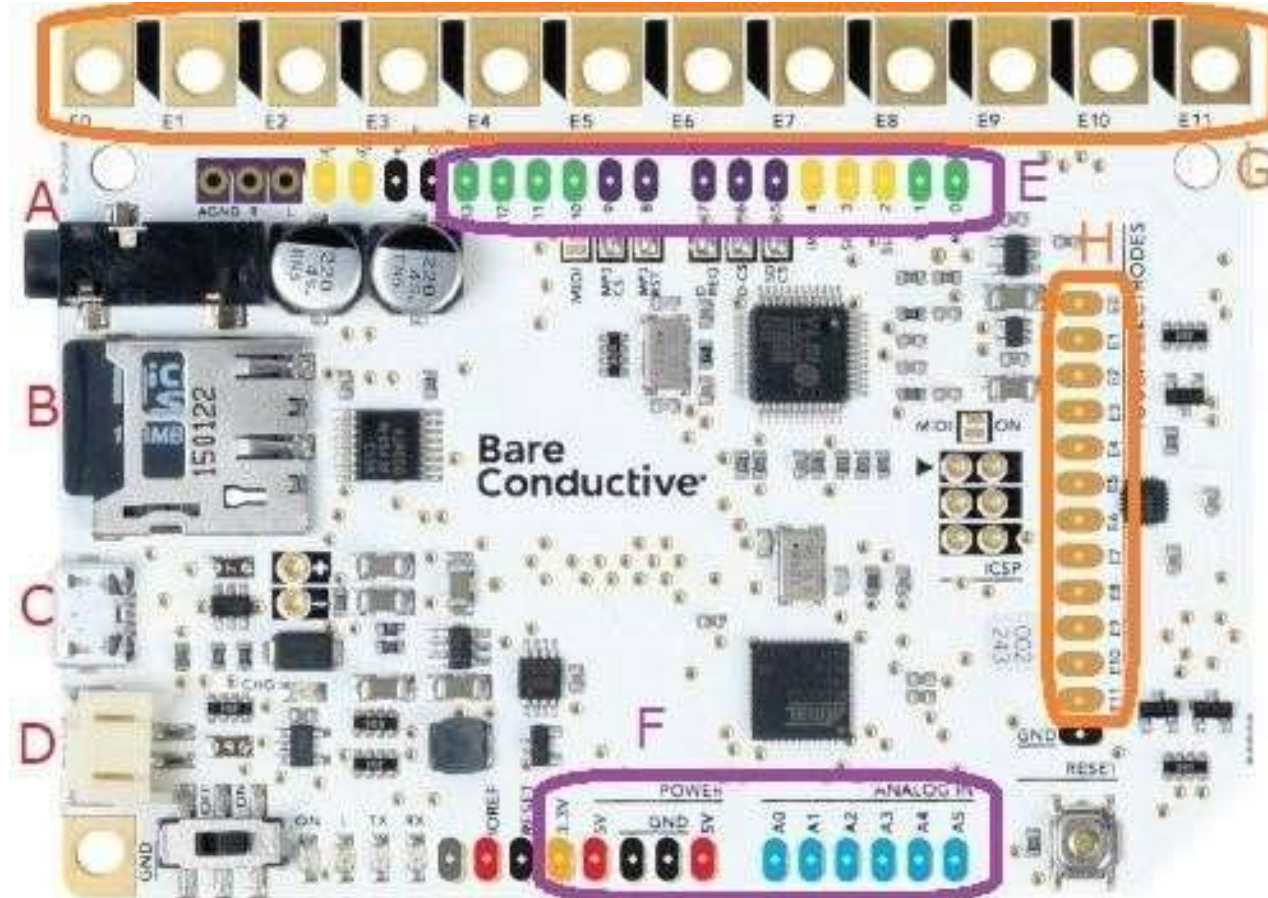
Motivation and Idea Evolution

- Dr. Mary Anna LaFratta (in Art Dept.) approached me three years ago
 - Incorporate programming into Art and Design?
 - Started out with swarm robotics
 - Saw Touchboards at a conference, using Arduino IDE
- Participated in WCU FICE (Faculty Institute of Community Engagement) in 2017-2018
 - Incorporate service learning into curriculum?
 - Full Spectrum Farm helps autistic children and adults
 - Visited them in summer 2018

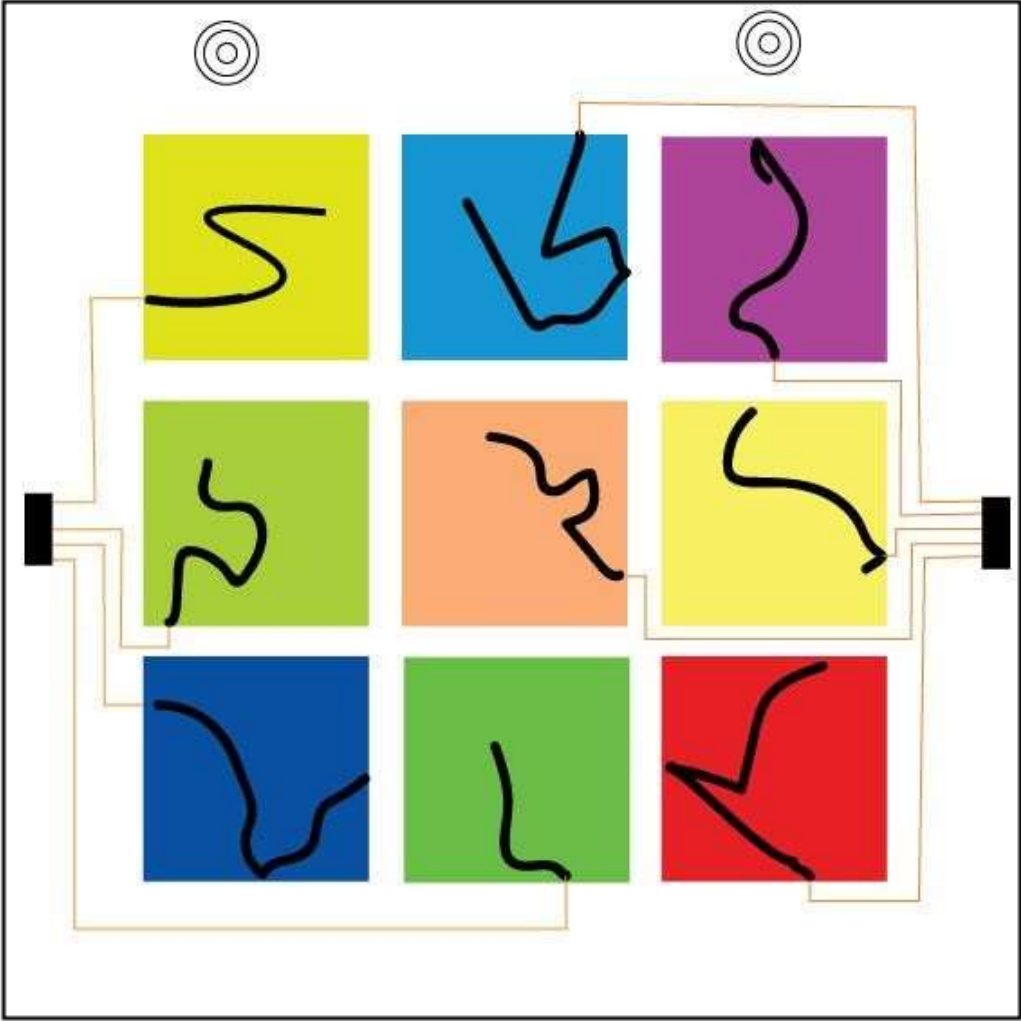
Project Description: Collaboration



Project Description: Touchboard



Project Description: Farm Project



Project Description: Course Project

- ENGR 493
 - Use whatever sensors and actuators as one may like and explore the limitations of Touchboard
- ART 132
 - Express more than images or audios alone

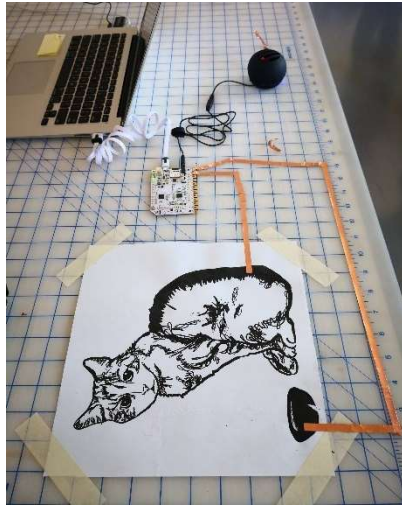
Project Progression: Funding

- American Society of Engineering Education (ASEE)'s Electrical and Computer Engineering Technology Department Heads Association (ECETDHA) Minigrant, \$1000
- WCU Intentional Learning Grant, \$1250
- WCU Faculty Institute of Community Engagement Grant, \$1000
- WCU Academic Project Grant, \$500
- Dr. Hugh Jack (WCU SET Program Director and Distinguished Professor)'s Endowment Fund, ~\$500
- College of Fine and Performing Art Support on ART 132 course materials

Project Progression: Schedule

Week #	Tue	Thu	Fri (@WCU BAC)
1	1/15	1/17	
2	1/22	1/24	
3	1/29	1/31	2/1 Clients learn Illustrator
4	2/4	2/7	
5	2/12	2/14	2/15 Clients learn Arduino
6	2/19	2/21	
7	2/26	2/28	
8	3/5	3/7	
9	3/12	3/14	Spring Break
10	3/19	3/21	3/22 Clients paint in Illustrator for Farm Project
11	3/26	3/28	3/29 Students work-day on Farm Project
12	4/2	4/4	4/5 Clients feedback
13	4/9	4/11	
14	4/16	4/18	Course Projects Collection
15	4/23	4/25	4/26 Exhibit, open to all
16	4/30	5/2	

Project Progression: Work



Project Progression: Exhibit!

CONNECTIONS

a collaborative project

- school of art + design
- school of engineering + technology
- full spectrum farm

sound

interactive

kinetics

image

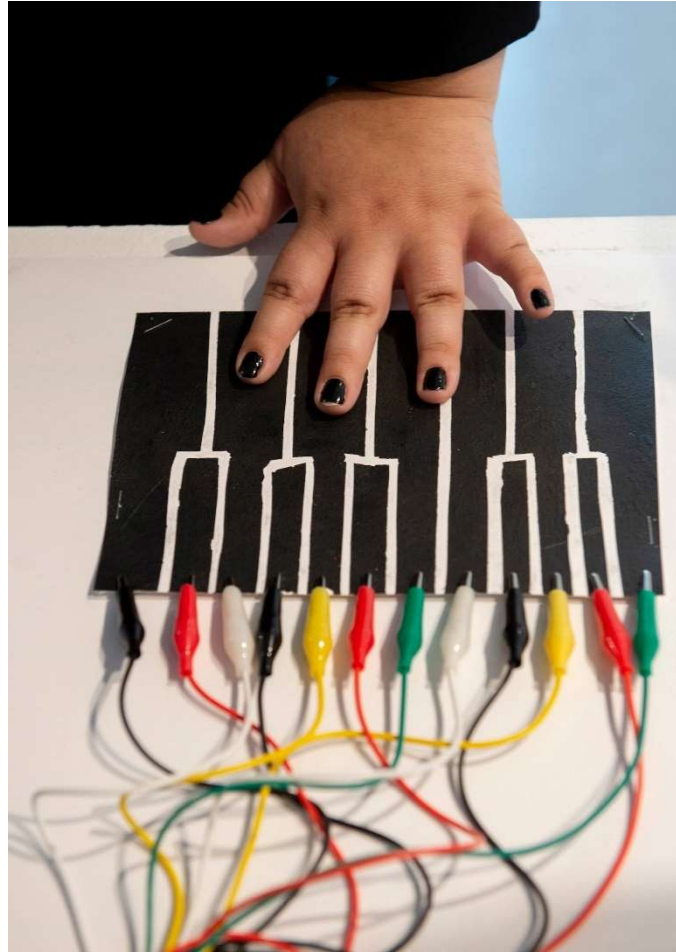
1 DAY
EXHIBITION

RM 224 BARDO ARTS CENTER
10:00AM - 6:00PM









What We've Learned

- The objective of the project elicited many offers to contribute and participate.
- The team enjoys interdisciplinary collaboration and project-based service learning. An important success is the effectiveness of student learning.
- The work also shows the value of tools like the Touch Board.

What We've Learned to help clients on the Autistic Spectrum

- Use written instructions besides (it not replacing) oral instructions
- Create quiet environment that allows them to focus on the exercise at hand.
- Prepare name tags for everyone before they know us well.

What We Still Need to Do

- We have administered two surveys to all students, but not yet processed the results:
 - **DEAL** reflection model
 - **D**escription of service experiences in an objective and detailed manner;
 - **E**xamination of those service experiences in light of reflection prompts according to a course's learning goals;
 - **A**rticulation of **L**earning, including goals for future action that can then be taken forward into the next experience for improved practice and further refinement of learning.

More Photos/Videos

- https://yan.wcu.edu/fsf_sp19/
- The final project for the community partner has been transported to Full Spectrum Farm, and the clients can update the artwork or make revisions.

Future Work

- The course project materials will be reused in the art and engineering classes next year.
 - We plan to expand it with 3D printed parts.
 - The art department plans to purchase more parts and expand this project to multiple sessions of their course.
- We will distribute the project ideas, documents, and other resources online, and research the impact of such collaboration and service learning.

Questions?

