

子どもは最強のUIテスター

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子どもは最強のUIテスター

品揃え

過去のEC/ICECでの発表

UIについて再考

ChatGPTに相談→タイトル決定

試作システムの情報を整理・紹介

→あとはDemo Sessionで触って下さい

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過去のEC発表

"IMPROVISESSION-II" : A Perfprming/Composing System for Improvisational Sessions with Networks

2002年5月15日、International Workshop on Entertainment Computing 2002(幕張メッセ)

FMC3 : コンテンツクリエイターのための著作権フリー音楽クリップ生成システム

2006年9月16日、EC2006(科学未来館)

メディアアートにおけるエンタテインメントの視点とは - 開学10年間のSUAC学生インスタレーション作品の変遷

2010年10月24日、EC2010(京都工芸繊維大)

内受容感覚バイオフィードバックによる"癒し系エンタテインメント"の考察

2015年9月26日、EC2015(札幌教育文化会館)

オンライン会議ツールは楽しくないのか?

2020年8月29日、EC2020(オンライン)

「新楽器をデザインする」というエンタテインメント

2021年9月1日、EC2021(オンライン)

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過去のICEC発表

Tutorial : Parallel Processing Platform for Interactive Systems Design

2009年9月2日、ICEC2009 (Conservatoire National des Arts et Metiers, Paris)

Tutorial : Bio-Sensing Platforms for “Wellness Entertainment” System Design

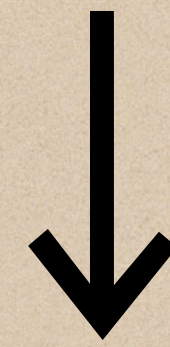
2018年9月17日、ICEC2009 (Poznan University of Technology)

Realtime Musical Composition System for Automatic Driving Vehicles

2018年9月20日、ICEC2009 (Poznan University of Technology)

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~~「エンタテインメントについて研究」する~~



「研究」こそエンタテインメントだ！

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ヤコブ・ニールセン

ニールセンの
ユーザビリティ
10原則

3 User Control
and Freedom

Definition Users often perform actions by mistake. They need a clearly marked "emergency exit" to leave the unwanted action without having to go through an extended process.

- When it's easy for people to back out of a process or undo an action, it fosters a sense of freedom and confidence.

Exits allow users to remain in control of the system and avoid getting stuck and feeling frustrated.
- Tip: Support Undo and Redo.

Tip: Show a clear way to exit the current interaction, like a "Cancel" button.

Tip: Make sure the exit is clearly labeled and discoverable.
- 1 Exit sign
Digital spaces need quick "emergency" exits, just like physical spaces do.

2 Undo and redo
These functions give users freedom because they don't have worry about their actions — everything is easily reversible.

3 Cancel button
Users shouldn't have to commit to a process once it's started — they should be able to easily cancel and abandon.

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www.nngroup.com/articles/user-control-and-freedom

1 Visibility of
System Status

Definition The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.

- Knowing what the current system status is can help users learn the outcome of their prior interactions and determine next steps.

Predictible interactions create trust in the product as well as the brand.
- Tip: Communicate clearly to users what the system's state is — no action with consequences to users should be taken without informing them.

Tip: Present feedback to the user as quickly as possible.

Tip: Build trust through open and continuous communication.
- 1 "You Are Here" maps
Interactive mail maps have to show people where they currently are, to help them understand where to go next.

2 Checkout flow
Multistep processes show users which steps they've completed, they're currently working on, and what comes next.

3 Phone tap
Touchscreen UIs need to reassure users that their taps have an effect — often through visual change or haptic feedback.

NN/g

www.nngroup.com/articles/visibility-system-status/

4 Consistency
and Standards

Definition Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform and industry conventions.

- Jakob's Law states that people spend most of their time on products other than yours. Failing to maintain consistency may increase the users' cognitive load by forcing them to learn something new.
- Tip: Improve learnability by maintaining both types of consistency: internal and external.

Tip: Maintain consistency within a single product or a family of products (internal consistency).

Tip: Follow established industry conventions (external consistency).
- 1 Check-in counter
Check-in counters are usually located at the front of hotels. This consistency meets customers' expectations.

2 Design system
Using elements from the same design system across the product lines lowers the learning curve of users.

3 Notifications
A standardized notification design provides a similar but distinguishable look and feel for different app pop-ups.

NN/g

www.nngroup.com/articles/consistency-and-standards/

2 Match between System
and the Real World

Definition The design should speak the users' language. Use words, phrases, and concepts familiar to the user, rather than internal jargon. Follow real-world conventions, making information appear in a natural and logical order.

- The language you should use depends very much on your specific users.
- Tip: Ensure users can understand meaning without having to go look up a word's definition.

Tip: Never assume your understanding of words or concepts will match those of your users.

Tip: User research will help you uncover your users' familiar terminology, as well as their mental models around important concepts.
- 1 Stovetop controls
When stovetop controls match the layout of heating elements, users can quickly understand which control maps to each heating element.

2 "Car" vs. "automobile"
If users think about this object as a "car," use that as the label instead.

3 Shopping cart icon
A shopping cart icon is easily recognizable because that feature serves the same purpose as its real-life counterpart.

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www.nngroup.com/articles/match-system-real-world/

5 Error Prevention

Definition Good error messages are important, but the best designs carefully prevent problems from occurring in the first place. Either eliminate error-prone conditions, or check for them and present users with a confirmation option before they commit to the action.

- There are two types of errors: slips and mistakes.

Slips are unconscious errors caused by inattention.

Mistakes are conscious errors based on a mismatch between the user's mental model and the design.
- Tip: Prioritize your effort: Prevent high-cost errors first, then little frustrations.

Tip: Avoid slips by providing helpful constraints and good defaults.

Tip: Prevent mistakes by removing memory burdens, supporting undo, and warning your users.
- 1 Guard rails
Guard rails on curvy mountain roads prevent drivers from falling off of cliffs.

2 Airline confirmation
The confirmation page before checking out on airline websites gives users another chance to review the flight details.

3 Date selection on calendar
Offer good defaults and set boundaries when people book services by dates. Grey out unavailable options.

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www.nngroup.com/articles/slips/

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Jakob's Heuristic
6 Recognition Rather Than Recall

Definition Minimize the user's memory load by making elements, actions, and options visible. The user should **not have to remember information** from one part of the interface to another. Information required to use the design should be visible or easily retrievable when needed.



Humans have limited short-term memories. Interfaces that promote recognition reduce the amount of cognitive effort required from users.

- Tip: Let people recognize information in the interface, rather than having to remember ("recall") it.
- Tip: Offer help in-context, instead of giving users a long tutorial to memorize.
- Tip: Reduce the information that users have to remember.
- 1 **Lisbon**
People are more likely to correctly answer the question "Is Lisbon the capital of Portugal?" rather than "What's the capital of Portugal?"
- 2 **Comparison table**
Comparison tables list key differences so that users don't need to remember them to make comparisons.
- 3 **Search**
Search queries are presented together with the results as a reference.



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www.nngroup.com/articles/recognition-and-recall/

Jakob's Heuristic
7 Flexibility and Efficiency of Use

Definition Shortcuts — hidden from novice users — may speed up the interaction for the expert user such that the design can **cater to both inexperienced and experienced users**. Allow users to tailor frequent actions.



Flexible processes can be carried out in different ways, so that people can pick whichever method works for them.

- Tip: Provide accelerators like keyboard shortcuts and touch gestures.
- Tip: Provide personalization by tailoring content and functionality for individual users.
- Tip: Allow for customization, so users can make selections about how they want the product to work.
- 1 **Shortcuts**
Regular routes are listed on maps, but locals with more knowledge of the area can take shortcuts.
- 2 **Keyboard shortcut**
Keyboard shortcuts for complex products can help expert users finish their tasks more efficiently.
- 3 **Tap to like**
Social apps allow two ways to like posts. Experienced users can tap to like because it speeds up their browsing.



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www.nngroup.com/articles/flexibility-efficiency-heuristic/

Jakob's Heuristic
8 Aesthetic and Minimalist Design

Definition Interfaces should not contain information which is irrelevant or rarely needed. Every extra unit of information in an interface **competes** with the relevant units of information and diminishes their relative visibility.



This doesn't mean you have to use a flat design — it's about making sure you've keeping the content and visual design focused on the essentials. Ensure that the visual elements of the UI support the user's primary goals.

- Tip: Keep the content and visual design of UI focus on the essentials.
- Tip: Don't let unnecessary elements distract users from the information they really need.
- Tip: Prioritize the content and features to support primary goals.
- 1 **Ornate vs. simple teapot**
Excessive decorative elements can interfere with usability.
- 2 **Communicate, don't decorate**
Over-decoration can cause distraction and make it harder for people to get the core information they need.
- 3 **Messy vs organized UI**
Messy UI increases the interaction cost for users to find their desired content; Organized UI lowers the cost.



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www.nngroup.com/articles/aesthetic-and-minimalist-design/

Jakob's Heuristic
9 Help Users Recognize, Diagnose, and Recover from Errors

Definition Error messages should be expressed in **plain language** (no error codes), precisely indicate the problem, and constructively suggest a solution.



Error messages should be presented with visual treatments that will help users notice and recognize them.

- Tip: Use traditional error message visuals, like bold, red text.
- Tip: Tell users what went wrong in language they will understand — avoid technical jargon.
- Tip: Offer users a solution, like a shortcut that can solve the error immediately.
- 1 **Wrong way sign**
Wrong-way signs on the road remind drivers that they are heading in the wrong direction and ask them to stop.
- 2 **Internet connection error**
Good internet connection error pages show what happened and constructively instruct users on how to fix the problem.
- 3 **No search results**
Provide useful help when people encounter search-result pages returning zero results, such as popular topics.



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www.nngroup.com/articles/usability-heuristic-recognition-errors/

Jakob's Heuristic
10 Help and Documentation

Definition It's best if the design **doesn't need** any additional explanation. However, it may be necessary to provide documentation to help users understand how to complete their tasks.



Help and documentation content should be easy to search and focused on the user's task. Keep it concise, and list concrete steps that need to be carried out.

- Tip: Ensure that the help documentation is easy to search.
- Tip: Whenever possible, present the documentation in-context right at the moment that the user requires it.
- Tip: List concrete steps to be carried out.
- 1 **Airport information center**
Information kiosks at airports are easily recognizable and solve customers' problems in context and immediately.
- 2 **Frequently asked questions**
Good frequently-asked-question pages anticipate and provide the helpful information that users might need.
- 3 **Information icon**
Information icons reveal tooltips to explain jargon when users touch or hover over them, which provides contextual help.



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www.nngroup.com/articles/help-and-documentation/

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ヤコブニールセンの10ヶ条

システム状態を可視化する(Visibility of System Status)

システムと現実を一致させる(Match between System and the Real World)

ユーザーに制御の自由を提供(User Control and Freedom)

一貫性と標準性(Consistency and Standards)

エラー防止(Error Prevention)

記憶に頼らない設計(Recognition Rather Than Recall)

操作の柔軟性と効率性(Flexibility and Efficiency of Use)

美的かつシンプルなデザイン(Aesthetic and Minimalist Design)

エラーを認識、診断、回復できる(Help Users Recognize, Diagnose, and Recover from Errors)

ヘルプとマニュアル(Help and Documentation)

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今回の報告に関するのは以下の3点

一貫性と標準性 (Consistency and Standards)

操作の柔軟性と効率性 (Flexibility and Efficiency of Use)

美的かつシンプルなデザイン (Aesthetic and Minimalist Design)

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タイトルをChatGPTに相談してみた

「子どもは最強のUIテスター」

説明なしで理解する

本質的な改善点を言い当てる

“使える／使えない”を容赦なく示す

このあたりがタイトルに全部つながっていて、かなり筋が通っています。

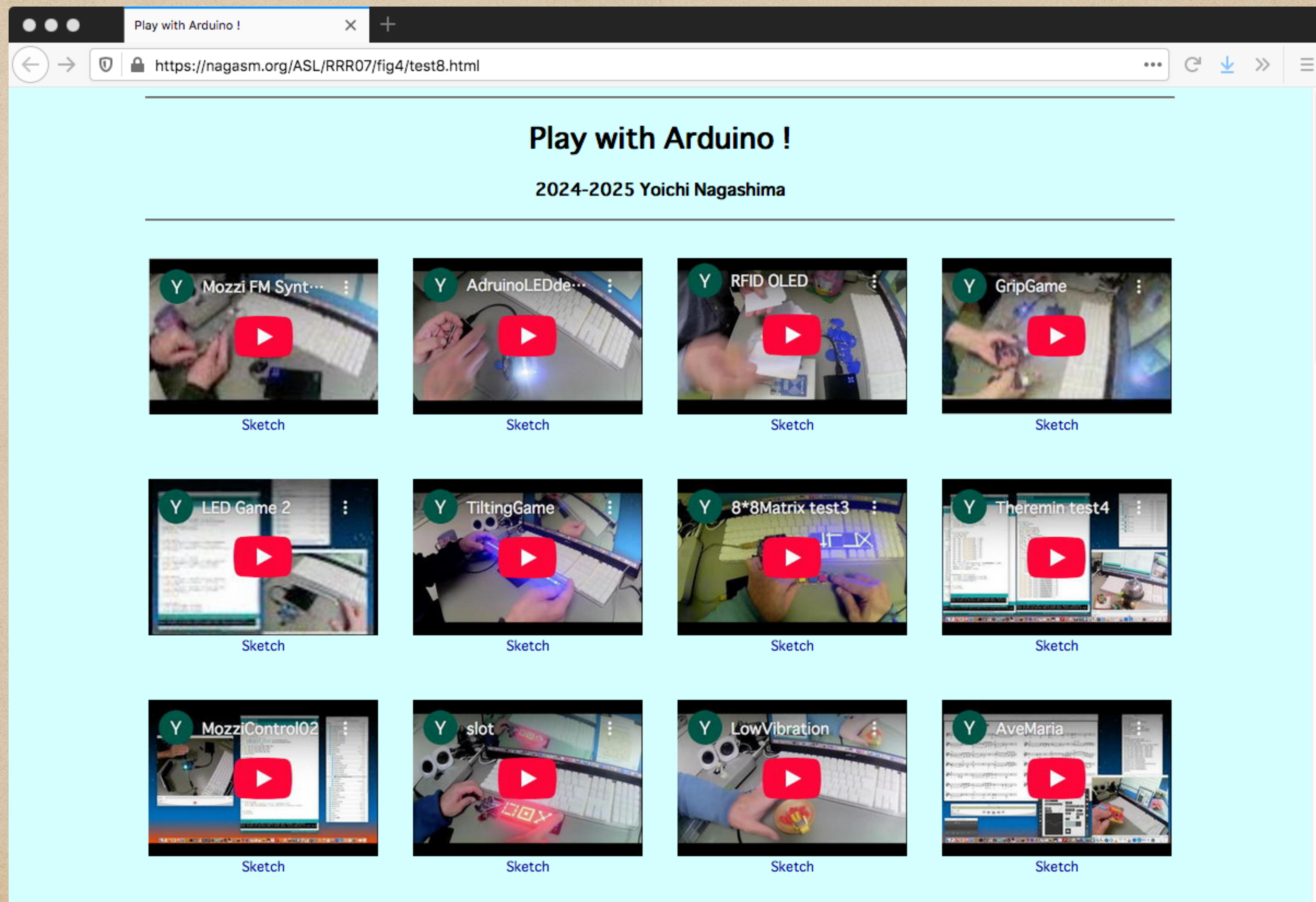
発表、面白くなりそうですね。

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「子どもロボット教室」の講師としてArduino電子工作の簡単なゲームを作って提供しているが、操作方法説明も不要でサッと慣れてしまう柔軟さに感服している。子どもは直感的アフォーダンスを試すための最良のUIテスターであり、また改善点をストレートに指摘してくれる最良のUIアドバイザーでもある。本発表では高機能LEDを活用した8種類のシステム事例を紹介し、デザインエンタテインメントの視点と共に検討したい。

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「ロボット」・「Arduino」の事例(Youtube)はこちら



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「アイデアを得て、手作りして、提供する」
こと自体が楽しい

→ デザイン・エンタテインメント

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長嶋洋一

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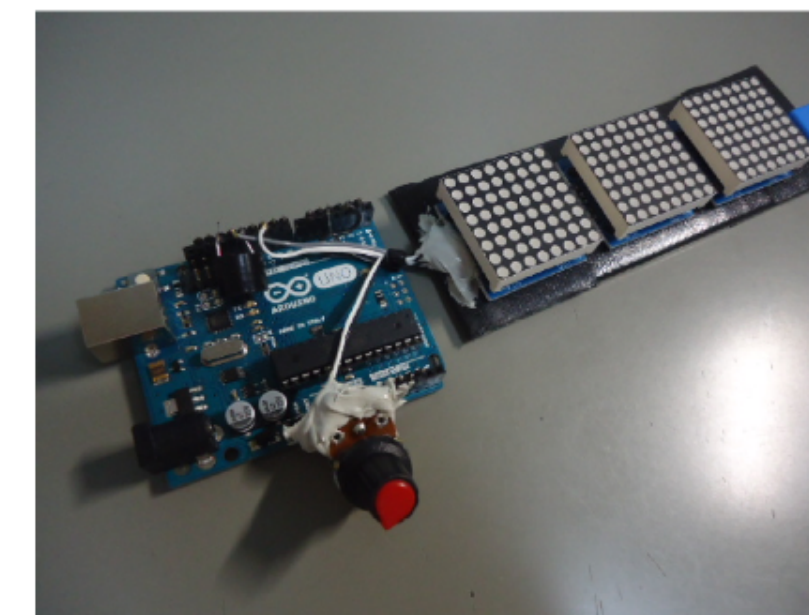
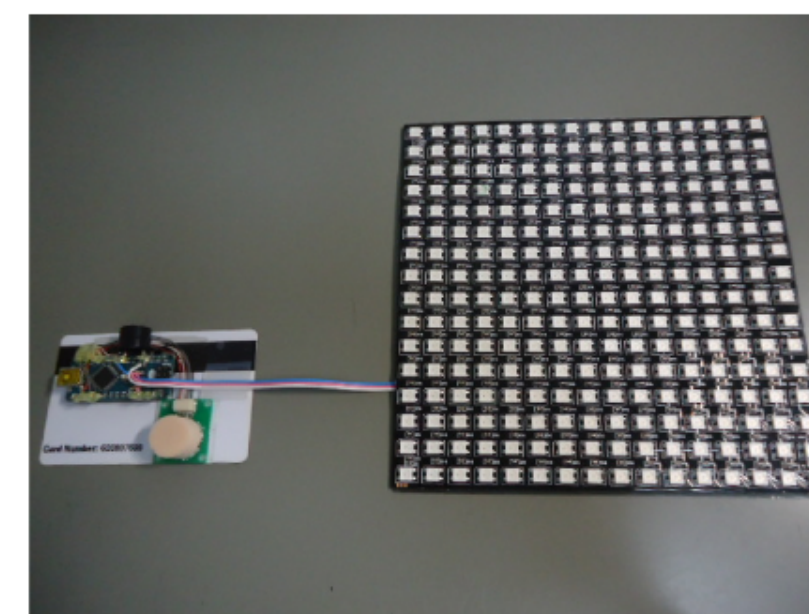
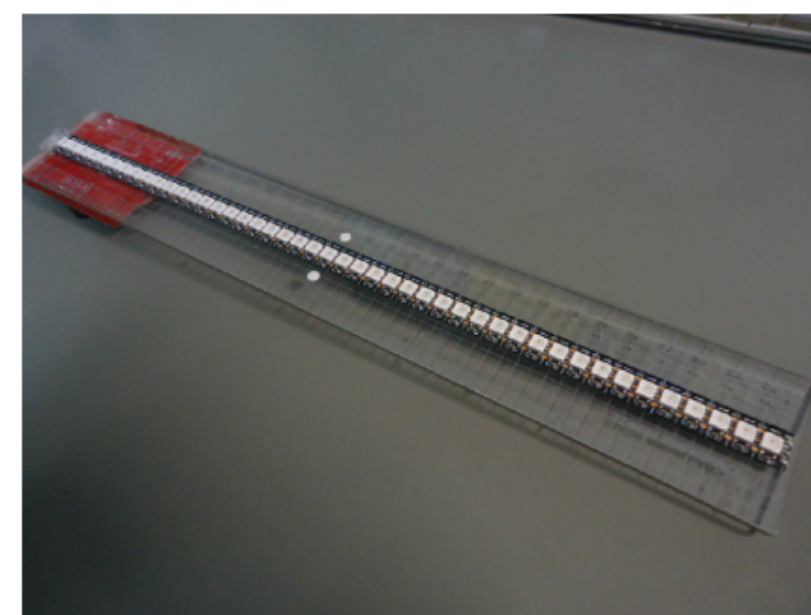
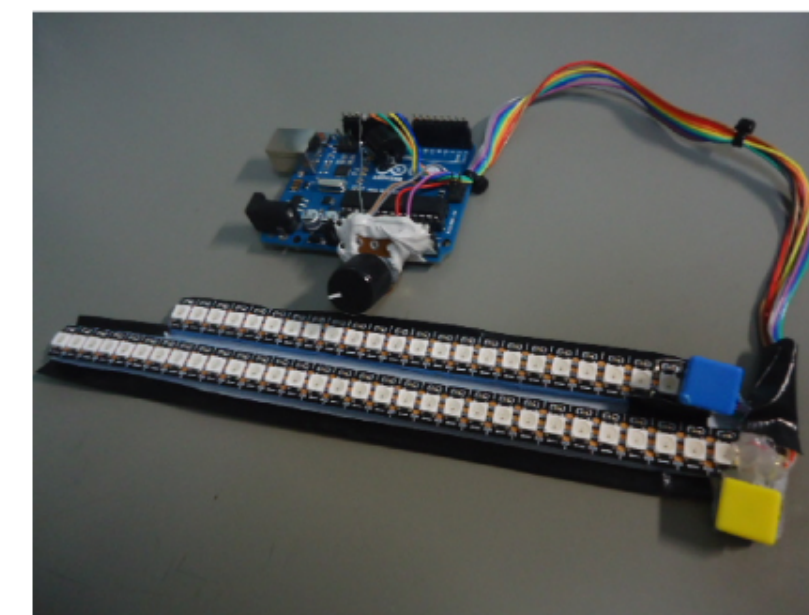
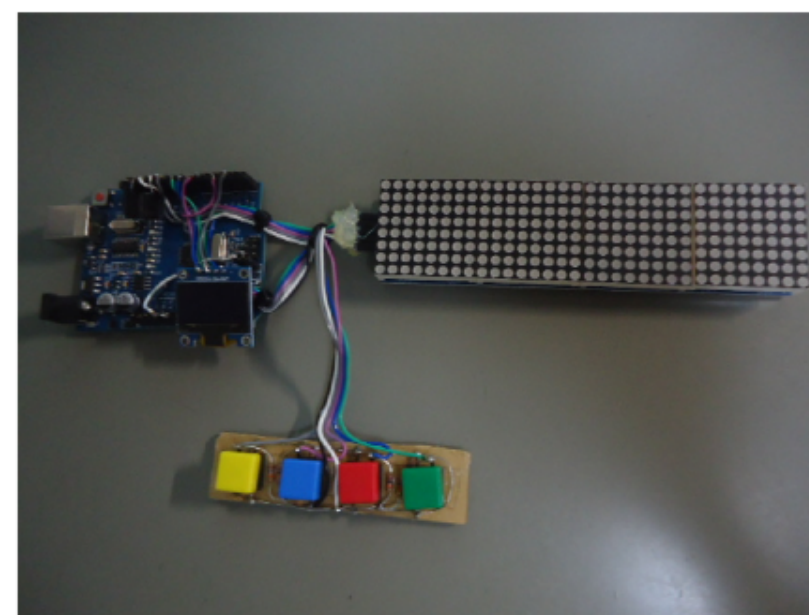
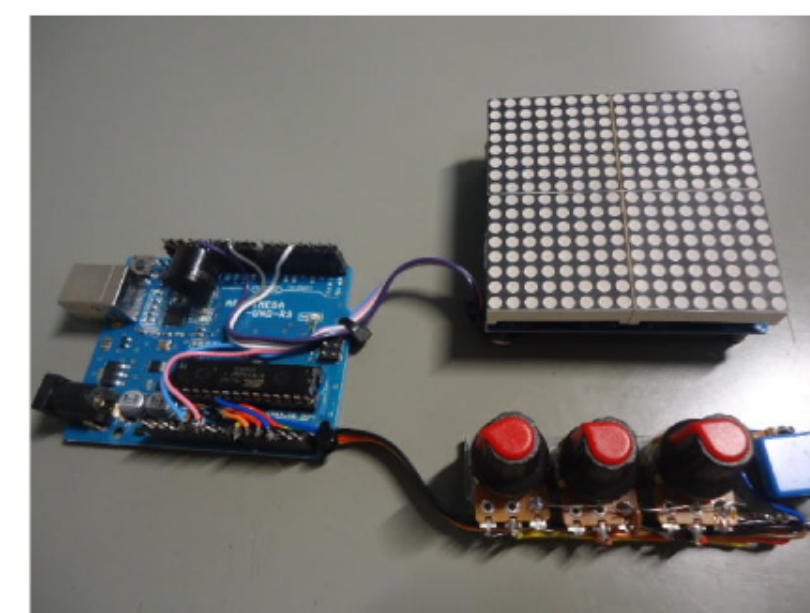
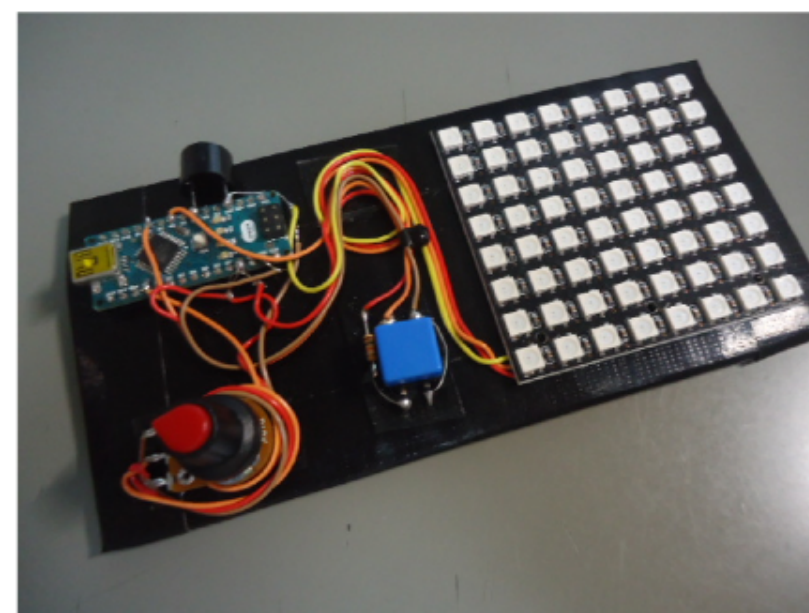
口頭発表

デモ・ポスター発表

「子どもロボット教室」の講師として
Arduino電子工作の簡単なゲーム
を作って提供しているが、操作方法
説明も不要でサッと慣れてしまう
柔軟さに感服している。

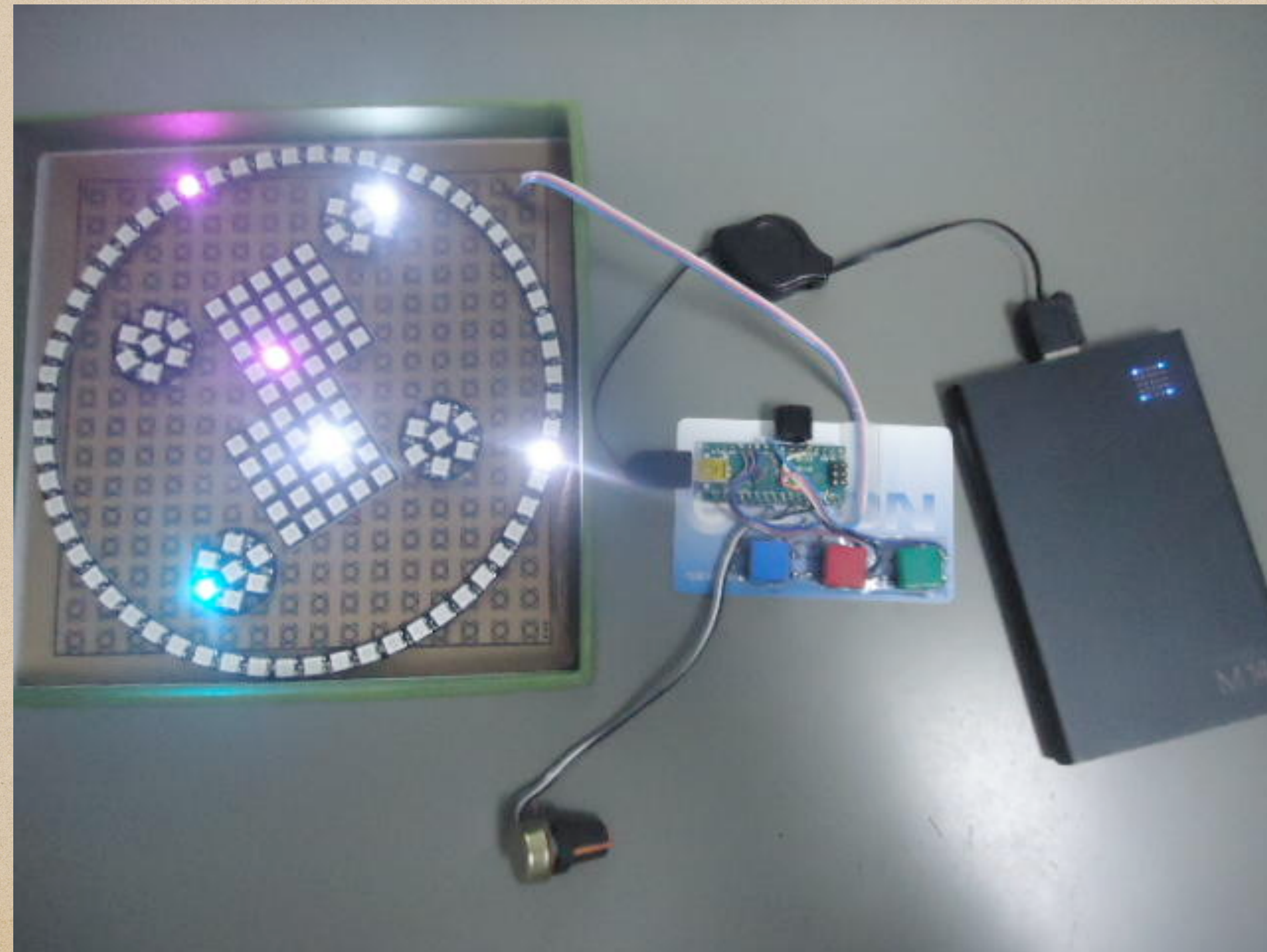
子どもは直感的アフォーダンスを試す
ための最良のUIテスターであり、また
改善点をストレートに指摘してくれる
最良のUIアドバイザーでもある。

本発表では高機能LEDを活用した
7種類のシステム事例を紹介し、
デザインエンタテインメントの視点と
共に検討したい。



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予稿では「全7件」でしたが、その後に1件、追加しました



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「全8件」の詳細な解説は以下をどうぞ



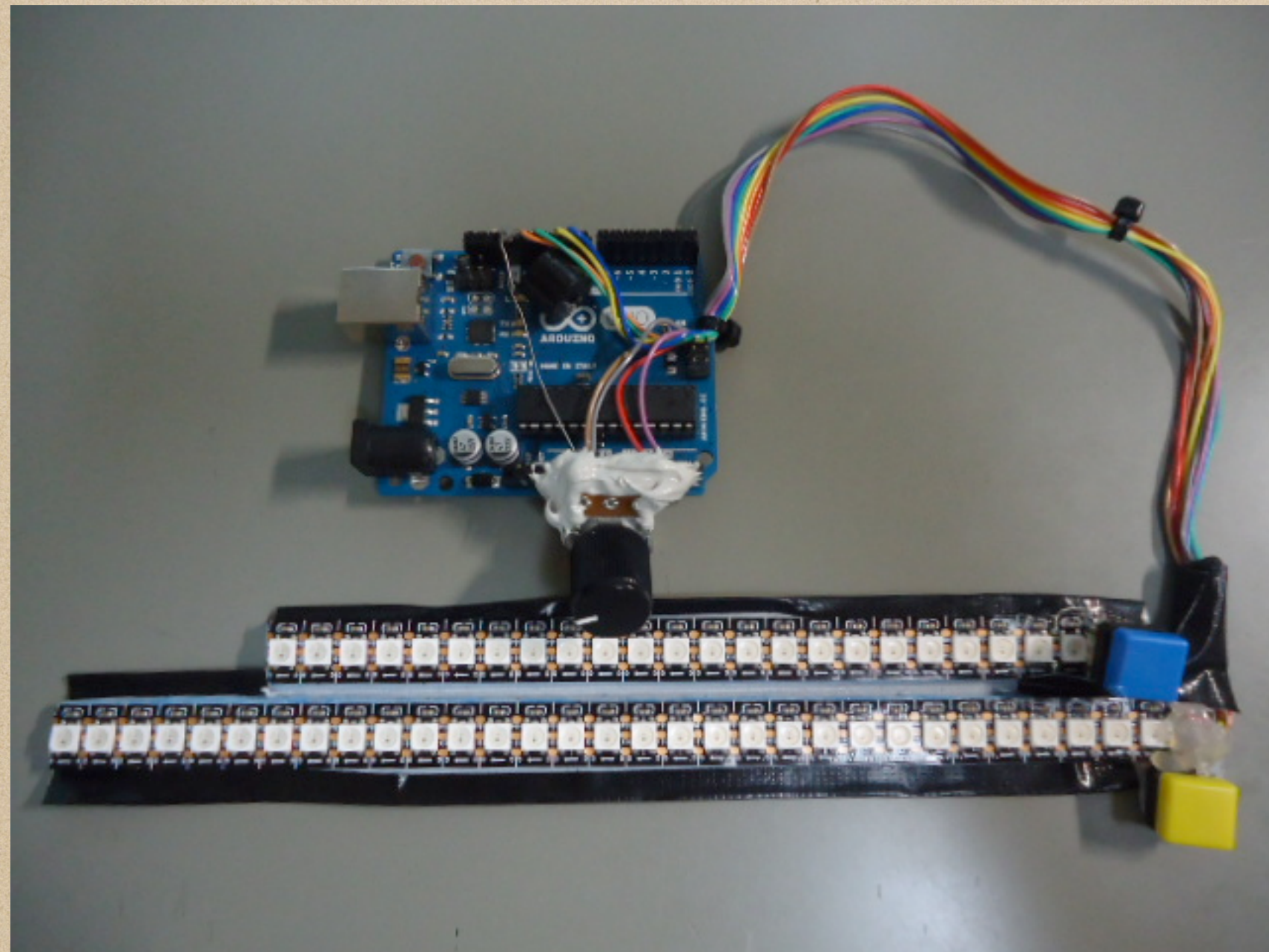
予稿にある7件はこちら



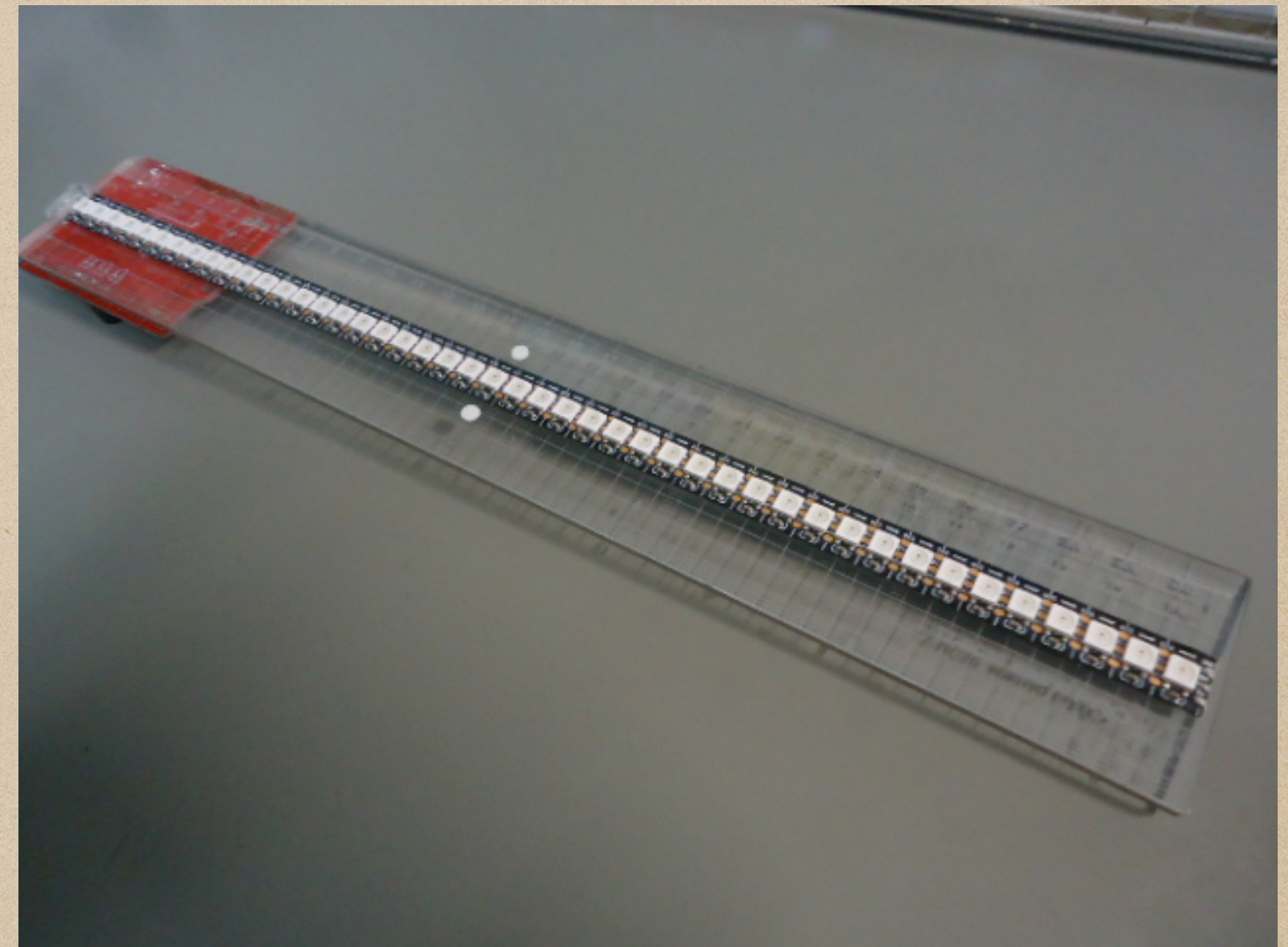
追加の1件はこちら

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1次元シューティングGame

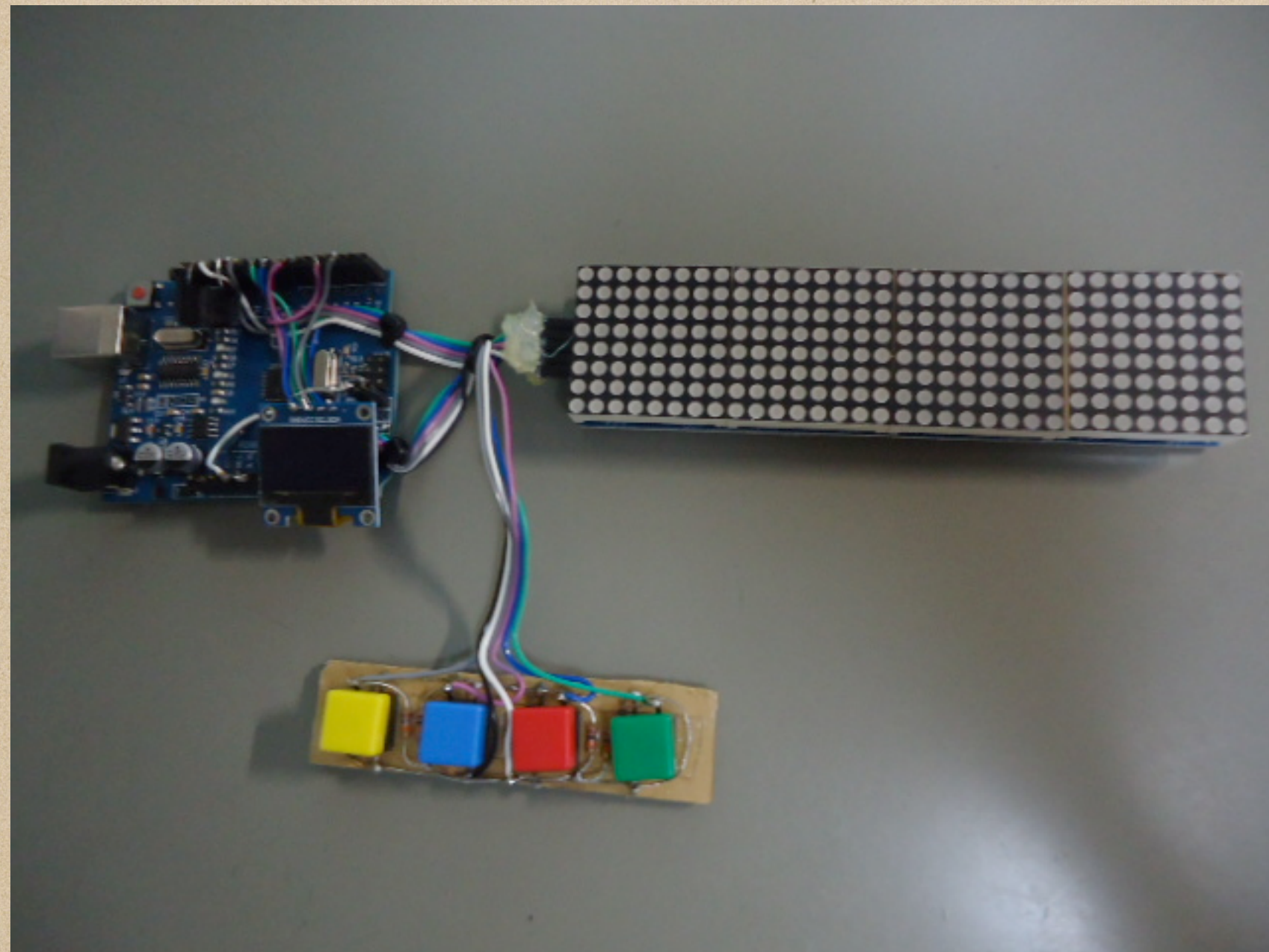


1次元イジワル傾きGame

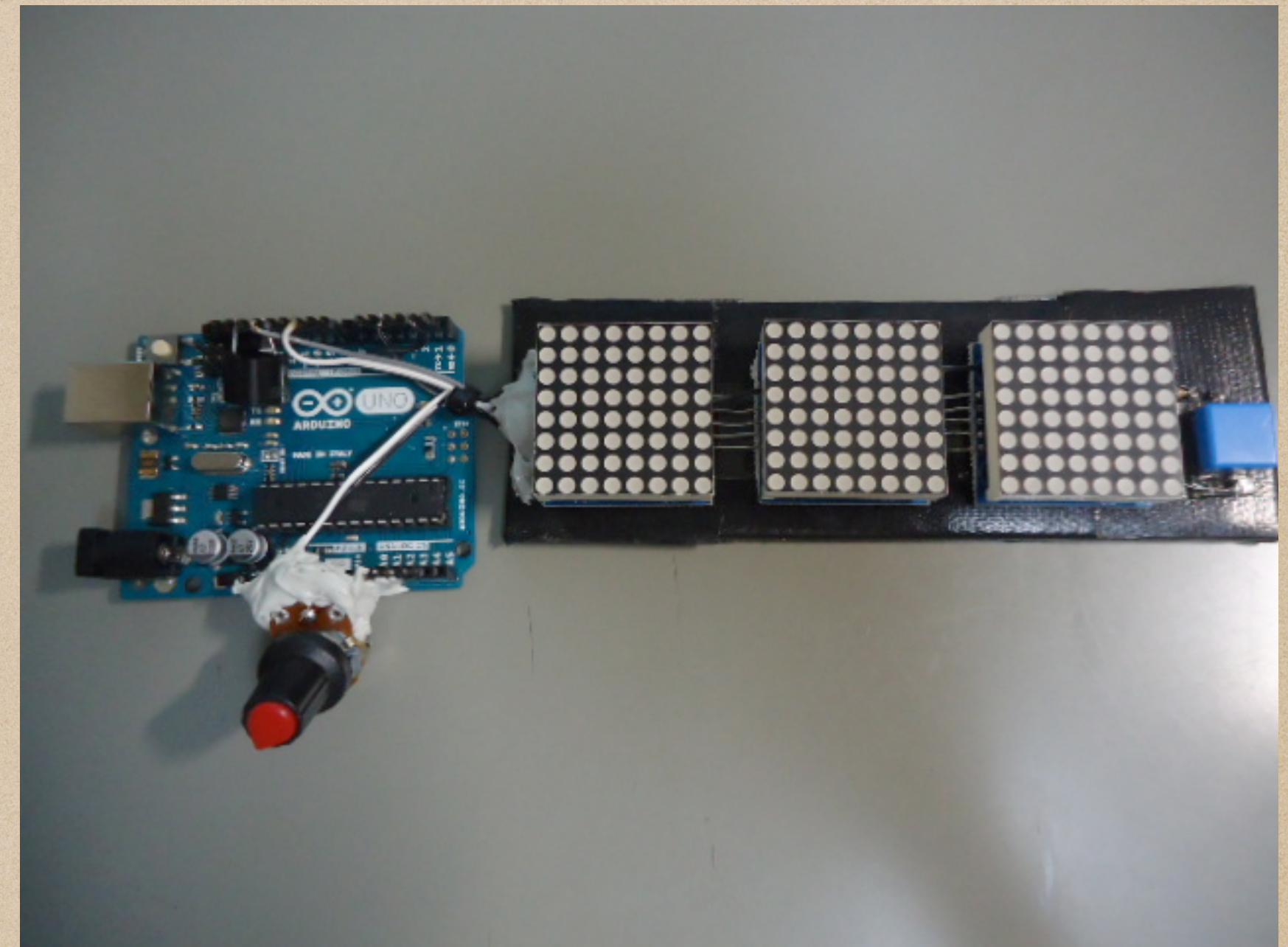


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8*8マトリクス4列絵合せGame

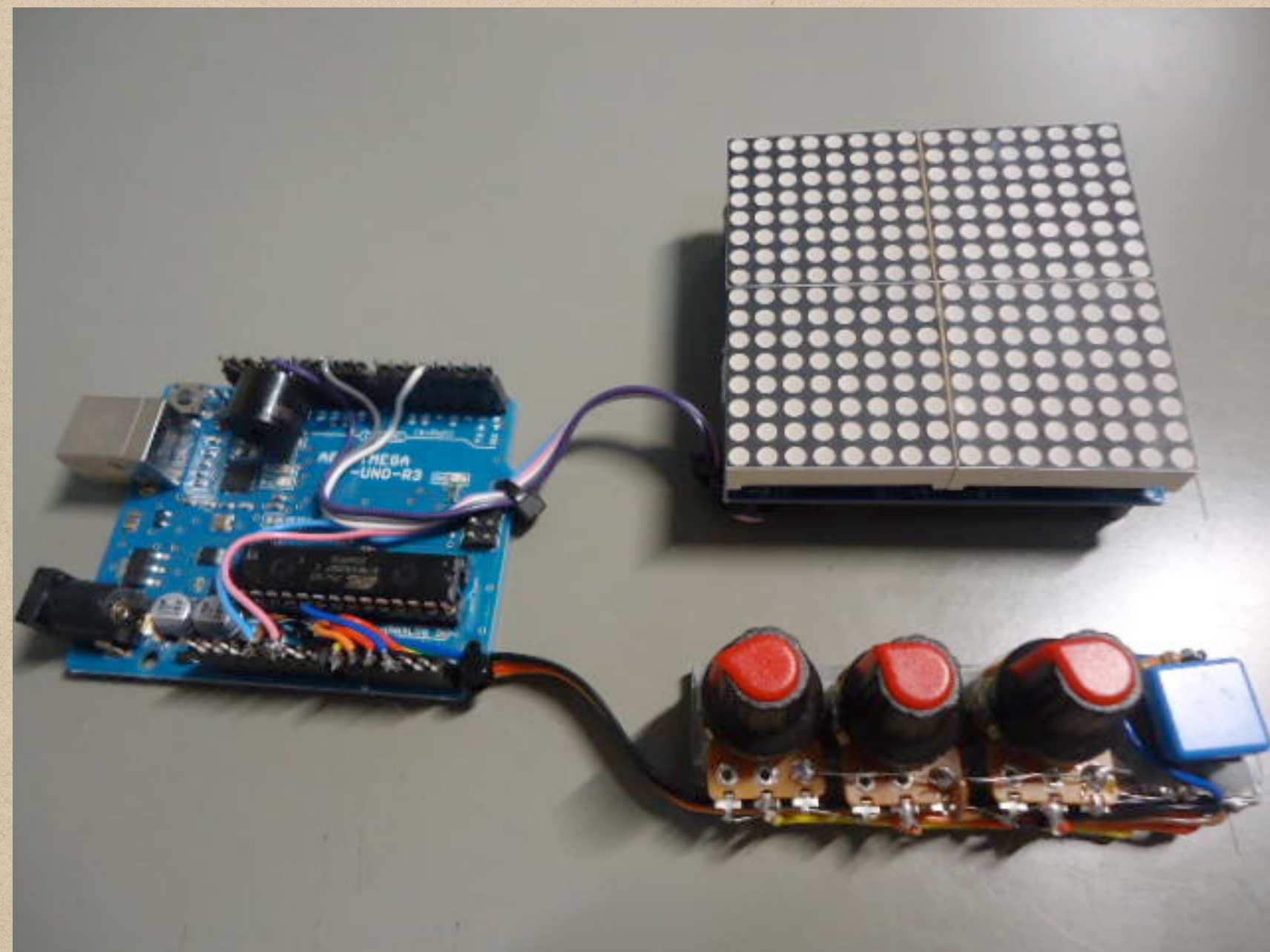


8*8スロットGame

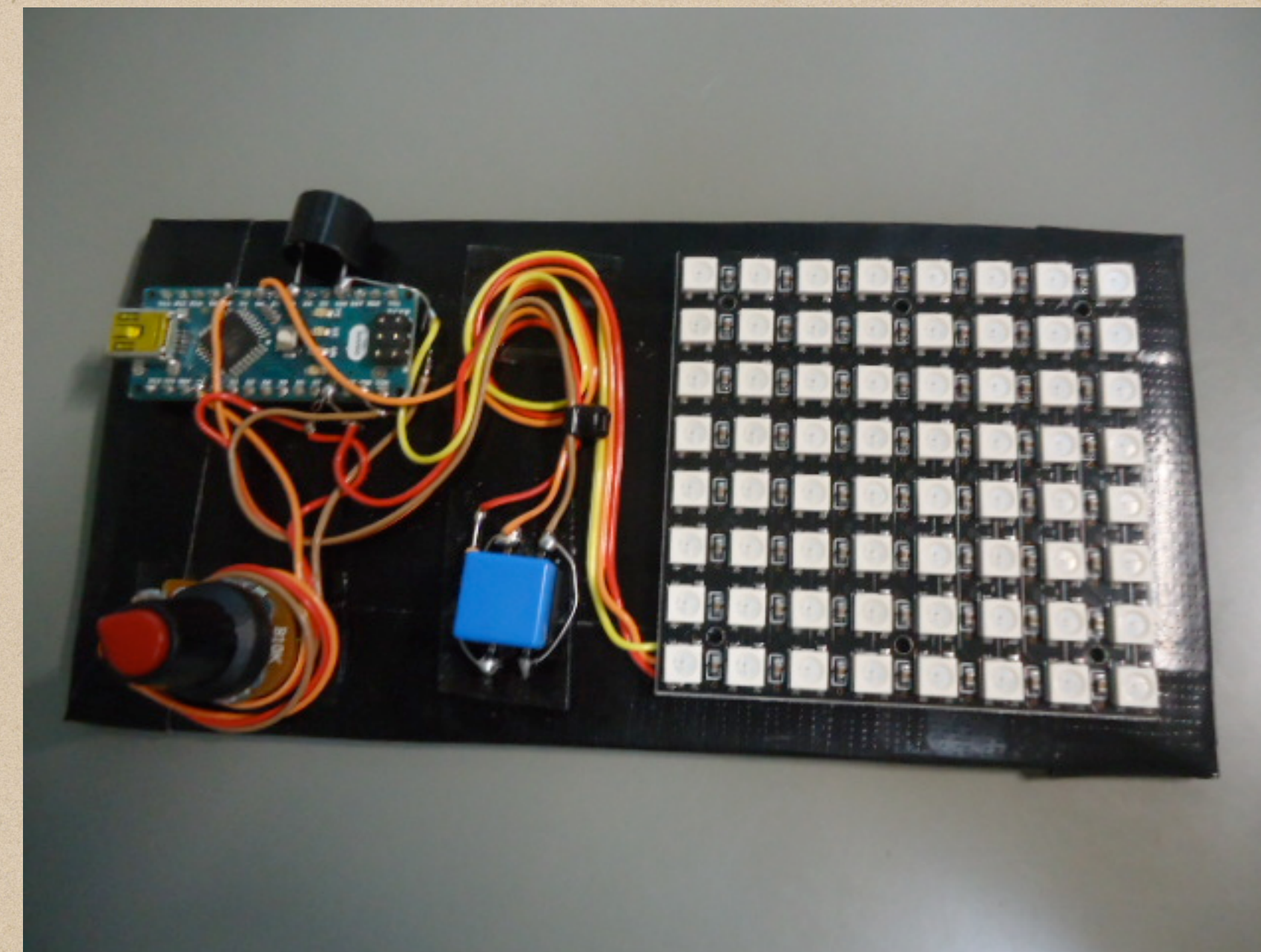


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8*8マトリクス縦横ずらし絵合せGame

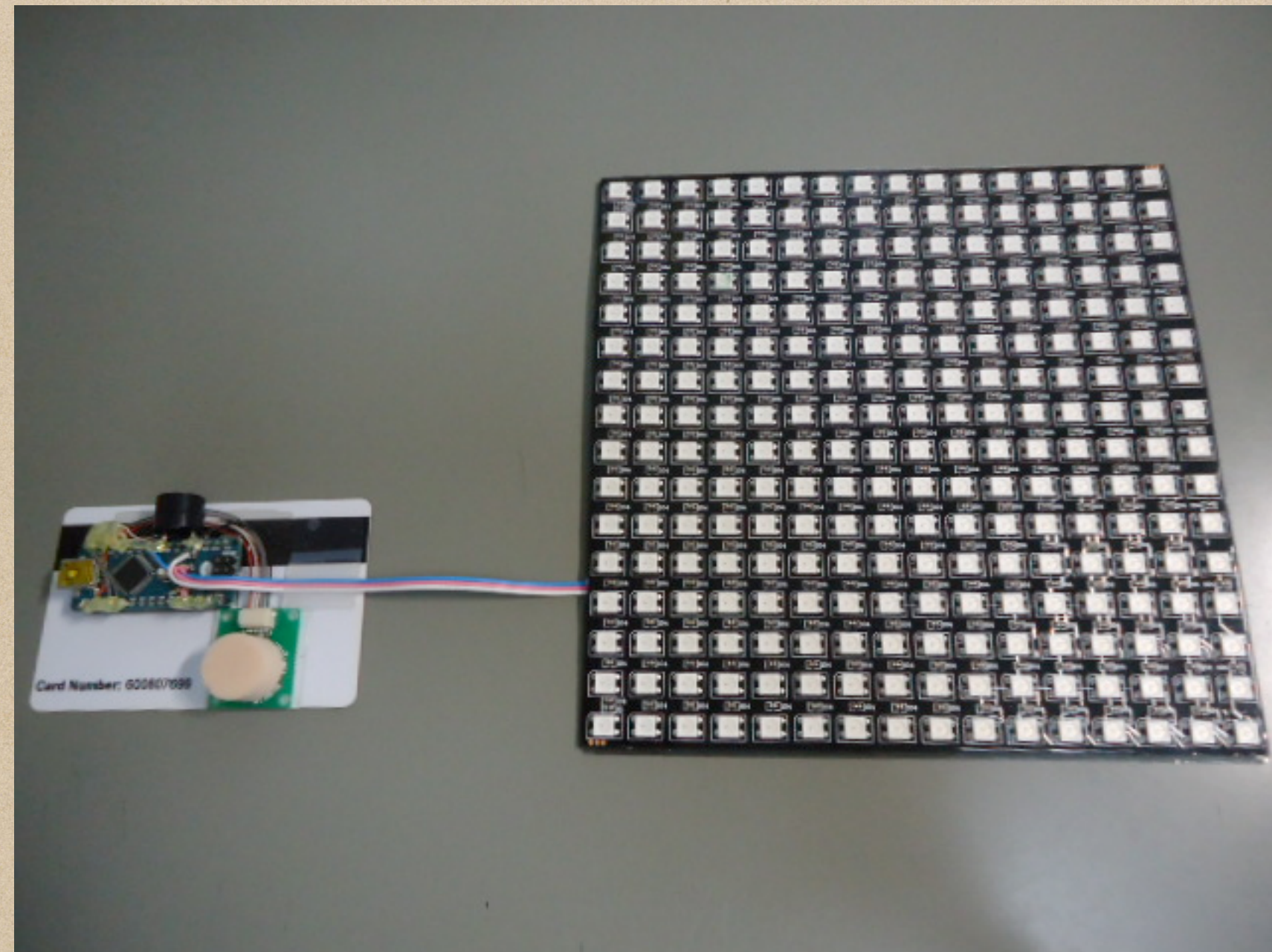


2次元8*8シューティングGame



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2次元16*16消しもののGame



8番目の新作



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「全8件」の回路図、ソースコード等は以下をどうぞ



予稿にある7件はこちら



追加の1件はこちら

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Demo会場にて、子どものように
遊んでみて下さい(_o_)

子どもは最強のUIテスター



プレゼンPDFはここにあります