

Led Matrix Display User Manual

CSE 453

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1 Introduction

The Led Matrix is a 16 x 16 grid with individual LED's that light up according to the colors inputted by the user. We created a web application that allows any user to input colors to the Led Matrix. Our web application contains a 16 x 16 grid which corresponds to the hardware Led Matrix. A person can implement a colorful design on the web application and transfer it to the actual Led Matrix with a button press.

2 Purpose

Our purpose is to supply students another outlet to express their creative minds. This project will enhance a creative design and hopefully garner interest in the connection between hardware and software. We want our project to encourage students to incorporate new technologies in their designs to enrich their creative design process.

3 Safety

1. Do not place Led Matrix on unstable surface.

- Do not put Led Matrix on any slanted, unstable and elevated surface.
- Place Led Matrix on flat, even surface to prevent any excessive impact on the Led Matrix.

2. Do not place any liquids near the Led Matrix.

- The insertion of liquids will destroy the Led Matrix and result in a possible electric shock.

3. Do not place any heavy objects on the Led Matrix case.

- Any excessive force on the case may result in the destruction of the Led Matrix and components.
- An dented/ altered case will lead to a ruined display of Led Matrix.

4. Be cautious of the power cord connection.

- Do not touch power cord with wet hands.
- Make sure the power cord is firmly inserted into the appropriate power outlet.
- Disconnect the power cord if the device will not be used for a long period of time.
- Do not touch the device when the power cord is connected.

5. Be cautious of overheating the Led Matrix.

- Avoid placing the Led Matrix in direct contact with sunlight.
- Make sure there is proper ventilation for the case and Led Matrix.
- Do not cover the Led matrix case or display.

4 Usage Instructions

1. Navigate to website's login page.

- Login to your account to access previous saved work.
- If you do not want an account to save your design, login with "tmp" as your username and do not input a password.

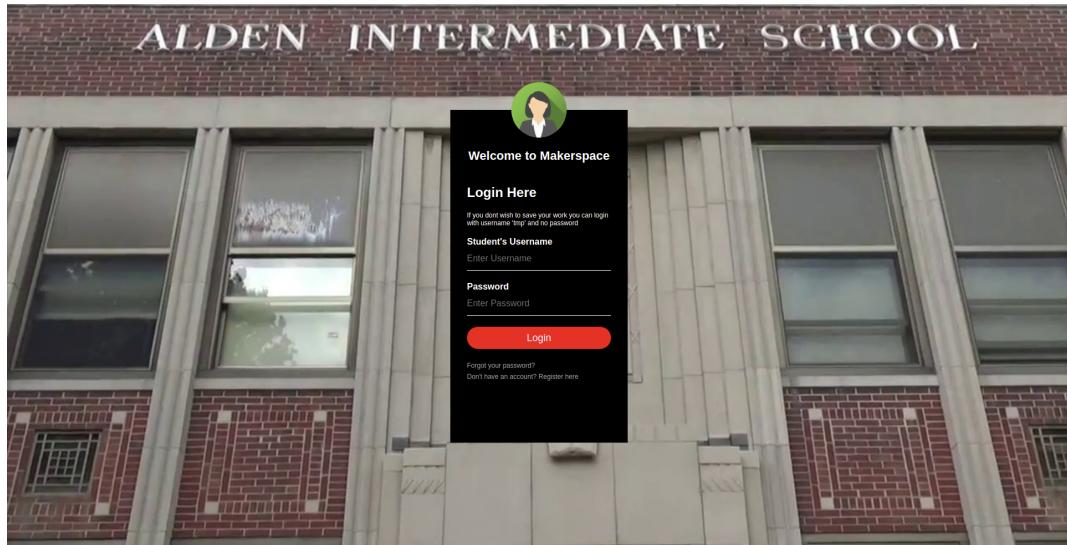


Fig 1: Login Page

2. Navigate to the register page if you would like to create an account to save your work.

- Input your desired username and password to successfully create your account.

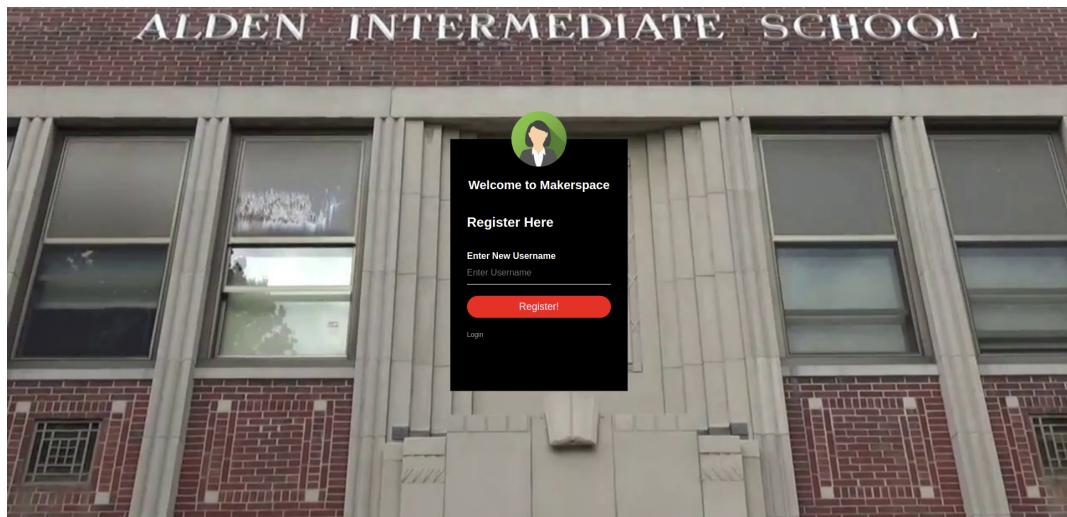


Fig 2: Register Page

3. After successful account creation and logging in to your account you will be redirected to the design page.

- The color wheel on the left side of the page allows the user to choose the colors they want their design to be.
 - There is a text box located underneath the color wheel to inform the user of the hexadecimal code of the color they chose. If they have a certain color they want and they know the hexadecimal code, they can choose to input that code into the box.
 - If a user wants to redo their design, they have to option of clearing the board with the "Clear All Tiles" button.
 - When the user is ready to send their design to the hardware Led Matrix, the user should press the "Color Matrix" button.
 - If the user has not finished their design and would like to save their work, they should press the "Save Sketch" button.
- The 16x16 matrix in the center of the screen is a direct representation of the hardware 16x16 matrix.
 - When coloring in the 16x16 grid, hovering over square with the same color as the one currently selected will result clearing the square of color.
 - Your design on the 16x16 will be transferred to the hardware Led Matrix when the "Color Matrix" button is pressed.
 - Our example design is green and blue text of "CSE 453". You how this design looks on the Led Matrix in the next instruction.
- On the right hand side of the screen, your saved sketch will be displayed as well as the logout button if you have created an account.
 - Saving sketches is only possible for a user that has registered an account and is currently logged in to that account.

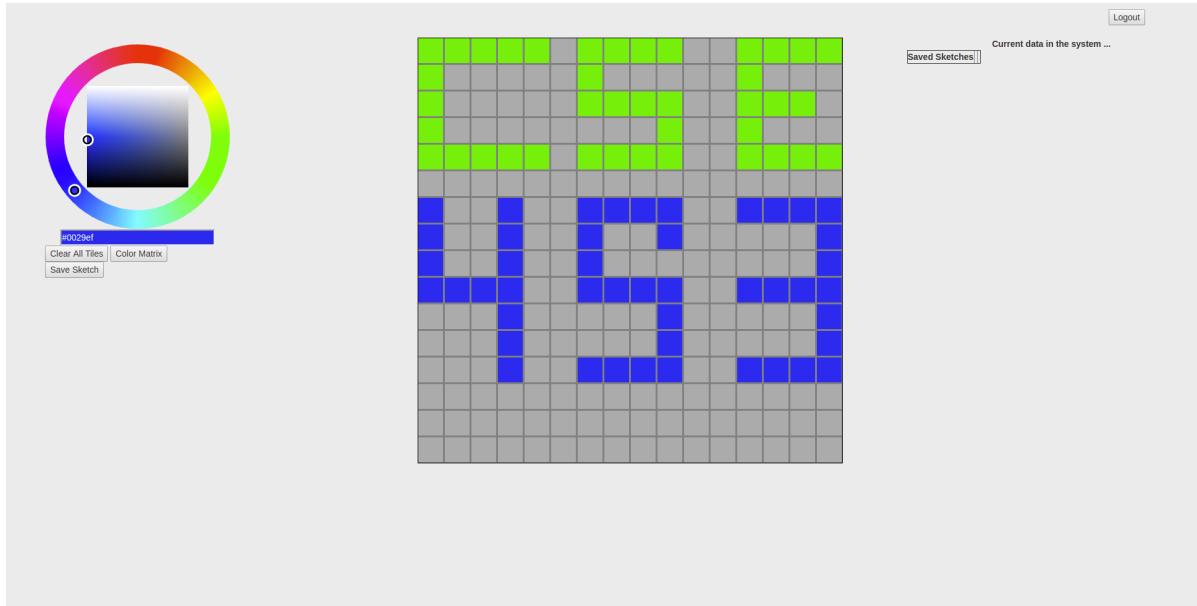


Fig 3: Design page with "CSE 453" design in Green and Blue colors, respectively.

4. Once you are ready to transfer your design to the Led Matrix, just press "Color Matrix".

- The picture below displays our example design that utilizes green and blue colors.
- The Led Matrix is within by a wooden case that contains other important components of this device.
- A plastic covering is laid over the Led Matrix to refine the look on the design.



Fig 4: Led Matrix Display with example design “CSE 453”

5 Troubleshooting

If you are encountering issues with the web application or hardware Led matrix try the following solutions.

- **Unable to get to login page.**
 - Make sure the device you are trying to access the web page on is connected to the school's Wifi network.
- **Unable to get to the design page without an account.**
 - Use "tmp" as the login and do not input a password.
 - Hit the login button and you should be redirected to the design page.
- **Design keeps getting erased.**
 - Be careful when coloring in the squares, squares with the same color as the one selected will be erased or replaced by a new color.
- **Saved design is not there.**
 - Make sure you are logged in to the correct account.
 - If the design still does not appear in the right hand corner, you will be unable to retrieve the design.
 - You must make sure to hit the save button before logging out and closing the application.
- **Color will not show up on color wheel even with hexadecimal code.**
 - Make sure the hexadecimal code is prefaced with a "#". For example, "#32CD32".
 - Hit enter after correctly entering the hexadecimal code.
- **Design on 16x16 matrix does not show up on Led Matrix after hitting "Color Matrix" button.**
 - Ensure the device is powered on by firmly plugging in the power cord into a power outlet.