

Finger Art

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Project Checkoff Checklist

Gesture Detection – Sean

Video Capture Module

- Output color from camera
- Create filter module over video frame to identify brush end points
- Display camera output as a video mode (if time permits)

Center of Mass Module

- Calculate overall center of mass of brush
- Calculate two centers of mass of brush
- Display center of mass on screen (if time permits)
- Average centers of mass over last 8 calculations

Velocity Module

- Create circular buffer for last 32 centers of mass
- Update total distance between points

Intention Module

- Create a color palette
- Identify if user is absorbing paint or placing paint
- Use button to detect when user is putting brush to canvas
- Use circular motion to detect when user is putting brush to canvas (if time permits)
- Use flashing LED to detect if user wants to put brush to canvas (if time permits)

Game Module (if time permits)

- Paint Paint Revolution – system outputs a paint pattern and user has to attempt to paint pattern (if time permits)

Paint Genesis – Grace

Saturation Module

- Create internal counter
- Output +/- 1 sel_saturation

Color Generator

- Store current color (15 bits) and saturation (3 bits)
- Modify color based on new saturation values
- Additional bits for saturation (if time permits)

Brush Generator

- Create simple brush blobs
- Create complex brush blobs (if time permits)
- Create additional brush types based on velocity (if time permits)
- Calculate three equidistant points between centers of mass

Painter Module

- Read ZBT for current color and saturation
- Create new pixel color
- Write new pixel color to ZBT

ZBT

- Store 18-bits per pixel – 15 bits of color, 3 bits of saturation
- Be able to alternate between reading and writing at 80 MHz
- Read 5 pixels ahead
- Additional bits for saturation (if time permits)

Display Module

- Generate 800x600 display signals
- Fetch color at 40 MHz
- Show position of brush ends

Game Module (if time permits)

- Paint Paint Revolution – system outputs a paint pattern and user has to attempt to paint pattern (if time permits)