

Points Summary

Subsystem Name	High Level Requirement	Point
Power & Base-shield subsystem	The base shield is highly compacted. It is portable and light weighted.	5
	This subsystem can supply power steadily through the wireless charging coils.	5
Display & Control Subsystem	This subsystem can present different kinds of input like image, gif, and video.	12
	This subsystem should successfully display content with sufficient luminance and high fidelity.	8
Logic & Interface Subsystem	This subsystem can handle coordinate system conversion and brightness correction efficiently.	8
	This subsystem can rapidly transmit signals to the display subsystem in real time manner.	8
	This subsystem should have good accessibility, i.e., low learning cost and an easily understood user interface.	4
	Total	50

ECE 445

SENIOR DESIGN LABORATORY

FINAL DEMO

Digitally-controlled LED Rotating Display System

Team #10

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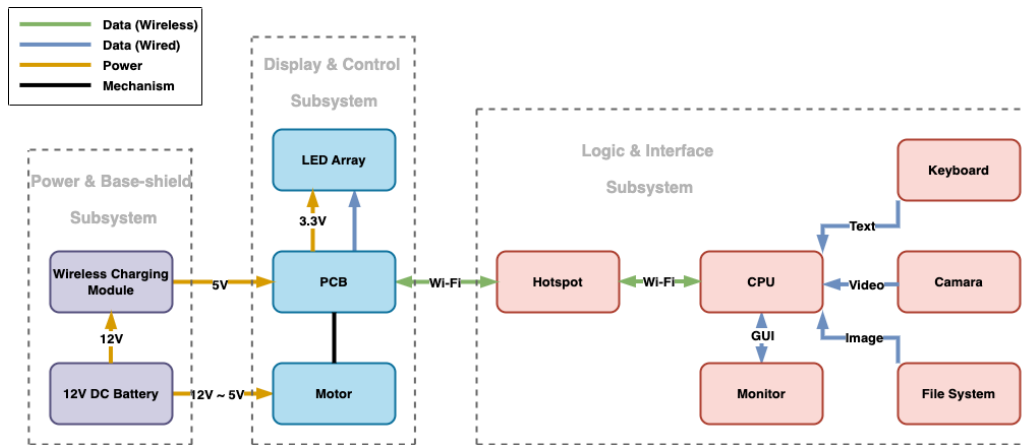
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Team 10 - Digitally-controlled LED Rotating Display System

Introduction: The thought of developing this cool project begins from our childhood dreams of being a Wizard. As we educated in the college, we get lot of skills and knowledge in engineering. Thus, we follow to develop our own POV LED display as our design project. Now we have the ability to cast a magic diagram on our hand in real life.

Block Diagram



Display Effect



High-Level Requirements

- The display system can present output with a sufficient luminance and high fidelity for both the color and shape despite the possible distortion from rotation in indoor environment.
- The wireless communication between PC and microcontroller can transmit control signal for LEDs with the speed about 30 FPS and low latency under 1 second continuously and stably.
- The image processing algorithm that handle coordinate system transformation from Cartesian to polar and brightness correction for display. Also, the overall process should have low latency smaller than 30 milliseconds to optimize the delay and guarantee real time video display.

