

PIXEL

Design Review 2 - List of Subsystems

3/5/2025

1. Camera Control and User Interface
 - a. Photo capture
 - i. Button to take picture
 - ii. Button to delete picture
 - iii. Live viewfinder on LCD at startup
 - iv. If an image is taken and not deleted in 5 seconds, the display returns to the viewfinder
 - v. If the image is taken and not deleted in 5 seconds, the image is saved to the SD card
 - vi. If the image is taken and deleted with the delete button, then the display returns to viewfinder mode
 - b. Laser Outline
 - i. Four laser lines powered in parallel with 3.3V; lasers arranged in a box frame around the camera lens.
 - c. Flash
 - i. LED flash driver powered with 3.3V.
 - ii. Driver is controlled with a PWM signal from a microcontroller (ESP32 C6 used in example).
 - iii. A potentiometer adjusts the frequency of the PWM and changes the brightness of the LED.
 - d. Button to switch between bluetooth and Wifi
 - i. Bluetooth remote connects when bluetooth is turned on and can push button to turn bluetooth off and turn wifi on → connect to ND-guest
2. Power
 - a. Battery voltage continuously monitored by ESP32
 - b. LED to indicate low battery
3. Cloud
 - a. Photo uploaded to Google Drive through upload to web server and then python script
 - b. Photos viewable on Senior Design website
 - c. AI algorithm to sort uploaded photos using a dictionary