

ECE 1188 Final Exam  
Adam Brower

1.

main.c included with submission.

2.

One notable feature of the Silicon Labs EFR32 Series , is its ultra-low energy consumption, making it particularly well-suited for battery-powered IoT devices. The EFR32MG21A boasts a highly optimized sleep mode with a standby current as low as 0.5  $\mu$ A, allowing devices to conserve power when not actively transmitting or receiving data. Additionally, its flexible power modes and integrated DC-DC converter enable efficient power management, extending battery life even further. These attributes are crucial for IoT/CPS applications, where devices may need to operate autonomously for extended periods without access to power sources, ensuring reliable and long-lasting performance in various deployment scenarios.  
(data sheet included in submission)

3.

As I was browsing, I saw Azure AI Custom Vision service that caught my eye. We cover a little bit of neural networks and as someone who has taken ECE 1395 I had background and understood the core concepts that we covered at a high level. However, if someone did not have that background this service provides some insight without the need to write your own model to train. All you would need is a camera that provides images to the service. I found one here <https://www.arducam.com/spi-microcontroller-cameras/> that communicates over SPI. It could be used for an extra challenge in a race such as a street race, if the bot sees a red light or stop sign it should stop but if not, it can drive forward.

Thank you for everything you've done for me and everyone else in the department over my time at pitt, it really has meant a lot to me to have a professor and advisor as accusable as you have made yourself – ajb :)