EGR 304 – Peaceful Pillow

A screenshot of a cell phone

Description generated with very high confidence

Flex sensor subsystem

* Component selection
* Voltage divider circuit design to get signal from passive sensor
* Amplification circuit design to match analog signal range to PSOC ADC range
* Subsystem soldering and unit testing
* Subsystem integration into full PCB, testing, and debugging

PSOC BLE Programming

* Reading analog inputs
* Driving digital outputs with PWM signal
* BLE communication to smartphone app
* Monitoring user activity while interacting with pillow through flex sensors

EGR 314—Game of Life

A screenshot of a cell phone

Description generated with very high confidence

Game Piece Sensor Subsystem

* Digital hall effect sensor and parallel-in serial-out shift register component selection
* Hall effect sensor circuit design (including schematic and subsystem PCB)
* Subsystem soldering, unit testing, debugging, and integration

Game Board Microcontroller (PIC18) Programming

* I2C interface to read hall effect switch status through shift registers
* I2C interface with Particle Photon to send game stats
* UART interface with scorepad PICs to send game piece positions