**The Software Skeleton Milestone**

**Patience, Inc.**

**Requirement**: Stubs are all listed, all I/O’s initialized, and a full state diagram included showing all states and transitions. Program has been visually show to switch between states with manual inputs on stubs.

The following design has been done for the software skeleton:

In solarlight.c:

* void main(): run the setup and loop functions below. Disables interrupt during setup().
* void setup(): initialize pins and peripherals. Runs once upon reset.
* void loop(): loops forever through two state machines. Executes library functions
  + Light and solar panel movement state machine
  + Maintenance mode state machine (with certain data intensive commands)
* High priority isr
* Low priority isr

In communication.c

* Setup function for communications – comm\_start()
* Flush the rx and tx buffers – comm\_flush()
* Send a byte (by adding it to the buffer) – comm\_tx(data)
* Begin transmission – comm\_go()
* Receive a byte – comm\_rx()
* Receive a word or short – comm\_rx\_word()

In eeprom.c

* This is initialized after the RTC
* Startup eeprom: mem\_start()
* Check the eeprom: mem\_check
* Log an event onto the EEPROM – mem\_append\_log(event number)

In hid.c

* Generic HID (Human Interface Device) functions
  + Setup all the pins for the HID periphrials
  + Main function to run inside main loop – hid\_loop()
  + Execute a function – hid\_execute
* USB Functions
  + Usb\_isr
  + Usb\_insertion
  + Usb\_removal
  + Usb\_oneStatus
  + Usb\_myStatus
  + Usb\_allStatus
  + Usb\_end
* LCD Functions
  + Lcd-begin
  + Lcd\_meu
  + Lcd\_execute
  + Lcd\_usb
  + Lcd\_end
* Keypad Functions
  + Key\_isr
  + Key\_insertion
  + Key\_removal

In menu.c

* Contains each menu entry and command

In movement.c

* Contains functions to move the solar panel until it is in a good position

In rtc.c

* Setup the real time clock (if it is not already, as in returning from VBATT)

In sensors.c

* Photo\_value
* Temperature
* Rotational\_position
* Pir\_enable

In shared.c

* ADC functions (setup; single, double, and full updates)
* PWM functions (setup; set a pin)