Project Requirements

* Must be finished by the end of the semester
* Object oriented programming preferred
* Must document all 5 phases for all iterations and increments (requirements, analysis, design, implementation, and testing) using GitHub
* Include time for integration of parts, formalizing/compiling documentation, reports, and presentations
* Create testing plans before implementation/development
* UML diagram in Astah, Gantt chart in Microsoft project (or other), and State diagrams?

Integrated software system for a “car”

* must be able to drive - turn on/off, accelerate (gas), slow down (brake) must have
  + must be on to accel or slow down must have
  + car only starts with nonempty fuel and valid digital key) should have
    - have personalized digital keys (and a validation system) should have
      * digital keys are username + password??? should have
    - recognize fuel level (empty or not empty) should have
      * consumption rate?? should have
  + cannot continue to drive if fuel is empty (or car = off if fuel = 0)
  + driver controls on/off, accel/decel, “set” speed must have
  + ONLY STRAIGHT LINES (turning not included) must have
* radio - on/off, am/fm band, volume up/down, stations from a list should have
  + some stations location dependent should have
* phone - list of # or manual entry, volume up/down, mic up/down should have
* a simple interface displaying the following features:
  + Drive
    - On/off - display status + one button to toggle must have
    - Key - somewhere to enter the key to start the car (on/off can be toggled once valid key entered) must have
    - Accel/Decel - one button each? => need to clarify if rate can be adjusted must have
    - Set speed - one button to maintain current must have
    - See speed - display current must have
    - Fuel level - display current must have
    - See trip time - display current must have
  + Radio
    - Adjust volume (up/down) - one button each + display current should have
    - Adjust station (up/down) - one button each + display current should have
    - Adjust band (AM/FM) - one button to adjust + display current should have
  + Phone
    - Adjust volume - one button for up and one for down + current vol should have
    - Adjust mic level - one button ea. + current should have
    - See call duration - display current should have
    - List of phone numbers to select (dial when selected) should have
    - Manual # entry - keypad + call/end toggle button + display of numbers entered should have

Map

* current location – display nice to have
* stopped/not stopped – display nice to have
* information from each driving session, including:
  + driver name should have
  + speed and acceleration during trip should have
  + fuel supply/consumption should have
  + car, radio, and phone operation (include station, volume, call # and duration) should have
  + date and trip duration should have
  + avg and max speeds should have
* information from all sessions, including:
  + complete list of drivers should have
  + avg and max speeds (for each driver and overall?) should have
  + list of phone calls made should have

User Inputs: Digital Key, Car on/off, Accel, Decel, Set speed, radio volume up/down, station selection, station up/down, am/fm toggle, phone list (if selected automatically toggles dial), keypad, toggle dial/end, mic vol up/down, phone vol up/down

Outputs: On/off status, accel/decel rate, current speed, fuel level, trip time, current radio volume, current station, current band (am/fm), phone number entered, phone status (dialing/ended), call duration, current mic volume, current phone volume, map current loc + moving status, data file with tracked info