ENGI 301

Minimal Wi-Fi LED Widget Ticker Board Software Framework

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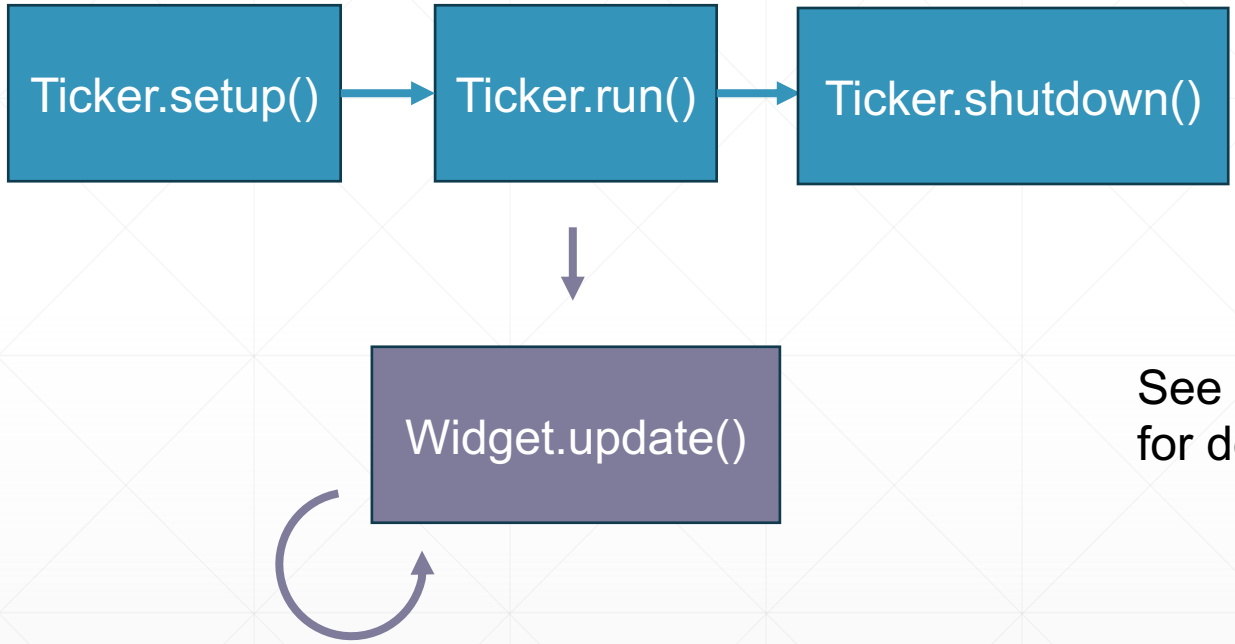
Main Ticker Class

- **Functions**
  - *Ticker.setup()* (*widget_index* = 0)
    - Sets up LED board, GPIO buttons (widget change, widget action, brightness, power), WiFi connection, AHT10 temp/humidity sensor
    - Creates objects for each widget
      - Each widget has its own class
    - Calls *Widget.setup()*
      - Sets up all widgets initially
  - *Ticker.run()* (when *widget_index* = 1 to end)
    - Updates *widget_index* from GPIO widget change or GPIO power button states
    - Calls *Widget.update()*
      - Updates current widget (or switches to new widget according to GPIO widget change button state)
      - Passes GPIO widget action button state and widget-specific inputs to current widget class
    - Updates brightness from GPIO brightness button states (may be a separate function)
    - Repeats (i.e. with a while loop) until *widget_index* = -1 (shutdown)
  - *Ticker.shutdown()* (when *widget_index* = -1)
    - Shuts off LED board, powers down PocketBeagle

Main Class Flowchart
Simplified



See previous slide
for detailed flow

Widget Class (Generalized)

- Inputs
  - GPIO action button state (may be widget-specific)
  - Widget-specific inputs (i.e. AHT10 temp/humidity measurement, Spotify account information, email or text account information, etc.)
- Functions
  - *Widget.setup()*
    - Sets up widget initially
  - *Widget.update()*
    - Uses inputs to update LED board
  - Other widget-specific functions
- *Example widget classes are shown in the following slides*

Temperature & Humidity Widget Class: *TempHumid*

- Inputs
  - AHT10 temp/humidity measurement
  - ??
- Functions
  - *TempHumid.setup()*
    - N/A for this widget (?)
  - *TempHumid.update()*
    - TBD, but likely displays current temp/humidity measurement reading on LED board
  - Other functions TBD

Spotify Currently Playing Widget Class: *SpotifyPlaying*

- Inputs
  - Spotify account information
  - ??
- Functions
  - *SpotifyPlaying.setup()*
    - TBD, but likely initially sets up access to Spotify account (i.e. with login information) using API
  - *SpotifyPlaying.Update()*
    - TBD, but likely retrieves currently-playing song and album art from Spotify's API and displays on LED board
  - Other functions TBD

Remote Message Board Widget Class: *MessageBoard*

- Inputs
  - Email or text account information
  - ??
- Functions
  - *MessageBoard.setup()*
    - TBD, but likely sets up access to email or text account (i.e. with login information) using relevant API
  - *MessageBoard.update()*
    - TBD, but likely checks email or text account to pull most recent message and displays on LED board
  - Other functions TBD