arm Education

Embedded Systems Essentials with Arm: Getting Started

Module 5

SV2 (5): Analog I/Os

The Mbed API provides functions for analog input. Functions such as creating AnalogIn objects that are connected to specific pins, reading the input voltage in a number of formats, as well as a shorthand operator for reading.

In the first two lines of the code above, an analog input pin and a digital output pin are configured and initialized.

If the analog input rises above a given voltage, an LED is turned on. Otherwise, it is turned off.

The Mbed API also provides functions for analog output. Functions such as creating AnalogOut objects that are connected to specific pins, writing to set the output voltage in a number of formats, reading the current output voltage setting, as well as shorthand operators for them.

This program outputs a 10-step ramp or 'for loop', with f = 1kilohertz. That's 10 kHz for 1 step, with 10 steps for the ramp equals 1kHz total signal frequency.

The output port is again initialized in the second line of the program.

A 'for loop' is then carried out which increments the 'i' float variable by 0.1 until it reaches 1.

In each loop the signal takes the float 'i' and sets it to the signal, ramping up over 10 steps.