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// TimerFreeTone Library - v1.5 - 09/12/2016

//

// AUTHOR/LICENSE:

// Created by Tim Eckel - teckel@leethost.com

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//

// LINKS:

// Project home: https://bitbucket.org/teckel12/arduino-timer-free-tone

// Blog: http://forum.arduino.cc/index.php?topic=235774.0

//

// DISCLAIMER:

// This software is furnished "as is", without technical support, and with no

// warranty, express or implied, as to its usefulness for any purpose.

//

// PURPOSE:

// Doesn't use timers which frees up conflicts with other libraries. Compatible

// with all ATmega, ATtiny and ARM-based microcontrollers. About 1,500 bytes

// smaller binary sketch size than the standard tone library. Exclusive use of

// port registers for AVR-based microcontrollers for fastest and smallest code.

// Close to a plug-in replacement for the standard Tone library.

//

// SYNTAX:

// TimerFreeTone( pin, frequency, duration [, volume ] ) - Play a note on pin at frequency in Hz for duration in milliseconds.

// Parameters:

// \* pin - Pin speaker is wired to (other wire to ground, be sure to add an inline 100 ohm resistor).

// \* frequency - Play the specified frequency (should work fairly well in the 100 to 15000 Hz range).

// \* duration - Set the duration to play in milliseconds. Range: 0 to 65535 (65.5 seconds).

// \* volume - Optionally set the tone volume level (from 1 to 10), defaults to full volume (10).

//

// HISTORY:

// 09/12/2016 v1.5 - Fixed problem with latest release of the Arduino IDE which

// caused the library to totally stop functioning. Adjusted note duration to

// not fail on timer rollover. Now delays for note duration when frequency or

// volume are zero.

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// 08/05/2016 v1.4 - Added optional volume parameter.

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// 07/23/2016 v1.3 - Fixed problem with long tone play durations. Changed the

// way the note duration is calculated from a suggestion by Paul Stoffregen

// (http://www.pjrc.com/teensy/).

//

// 01/14/2015 v1.2 - Calculates duration differently for higher tone accuracy

// and smaller code size.

//

// 04/30/2014 v1.1 - Automatically sets mode of pin to OUTPUT as does the

// standard Tone library. Sets pinOutput variable to volatile to work with

// certain microcontrollers. Removed overhead parameter and calculation, fairly

// accurate anyway at audible frequencies. Even smaller binary sketch size.

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// 04/25/2014 v1.0 - Initial release.

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#ifndef TimerFreeTone\_h

 #define TimerFreeTone\_h

 #if defined(ARDUINO) && ARDUINO >= 100

 #include <Arduino.h>

 #else

 #include <WProgram.h>

 #include <pins\_arduino.h>

 #endif

 void TimerFreeTone(uint8\_t pin, unsigned long frequency, unsigned int duration, uint8\_t volume = 10);

#endif