```
/*
  Example for generating microsteps using the TMC236
   and a microcontroller. Mixed decay is also used.

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                       Sternstraße 67
                       D - 20357 Hamburg, Germany
                       http://www.trinamic.com/

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   59 Temple Place - Suite 330, Boston, MA  02111-1307, USA.
*/

//Sine wave table used for 4-bit microstepping.
//The absolute values are left-shifted by one bit, and bit 0 is the sign bit (phase direct
//Bit 5 is the mixed decay bit. It is set when the absolute value is falling.
  UCHAR sinus_tab[64]={0x00, 0x02, 0x06, 0x08, 0x0c, 0x0e, 0x10, 0x14,
                       0x16, 0x18, 0x18, 0x1a, 0x1c, 0x1c, 0x1e, 0x1e,
                       0x3e, 0x3e, 0x3e, 0x3c, 0x3c, 0x3a, 0x38, 0x38,
                       0x36, 0x34, 0x30, 0x2e, 0x2c, 0x28, 0x26, 0x22,
                       0x01, 0x03, 0x07, 0x09, 0x0d, 0x0f, 0x11, 0x15,
                       0x17, 0x19, 0x19, 0x1b, 0x1d, 0x1d, 0x1f, 0x1f,
                       0x3f, 0x3f, 0x3f, 0x3d, 0x3d, 0x3b, 0x39, 0x39,
                       0x37, 0x35, 0x31, 0x2f, 0x2d, 0x29, 0x27, 0x23};

volatile UCHAR PhaseCount=0;



/*********************************************************
  This function generates the
  microsteps. The values are read from the
  table and output to the TMC236 or TMC239
  via the SPI interface.
  Call this function with the "ccw" parameter set to 1
  to step in negative direction,
  or with "ccw" set to 0 to step in positive direction.
  Callthis function for example in a timer interrupt.
*********************************************************/
void step(char ccw)
{
   UINT MixedDecayXOR=0, io;

   if(!ccw)
   {
      PhaseCount++;
   }
   else
   {      //The "Mixed Decay" bits must be reversed when running in CCW direction
      PhaseCount--;
      MixedDecayXOR=0x820;
   }
```

```
    io=((sinus_tab[PhaseCount & 63]<<6 | sinus_tab[(PhaseCount+16) & 63]) ^ MixedDecayXOR);

  //Now, set the CS line of the TMC236/239 low and send out the value of "io" by SPI
  //(MSB first).
  //After that, set the CS line high again.
    }
}
```