```
#define MIN_DELAY     75
/// @def INIT_DELAY initial delay for switch press when setting time.
#define INIT_DELAY    125
/// @def RAMP_DELAY ramp for initial delay to decrease with time to speed up time set when held.
#define RAMP_DELAY    5
/// @def TONE_TIME time for tone to stay activated in milliseconds before next tone.
#define TONE_TIME     250

/// @brief 7 segment lookup table A=0,B=1,C=2,D=3,E=4,F=5,G=6
const uint8_t segmentArray[] = {0x3F, 0x06, 0x5B, 0x4F, 0x66, 0x6D, 0x7D, 0x07, 0x7F, 0x6F};

/// @def Sturct to hold time elements for alarm and current time.
struct time
{
  uint8_t one_minutes;
  uint8_t ten_minutes;
  uint8_t one_hours;
  uint8_t ten_hours;
};

/// @brief Global variable for digit selection.
volatile uint8_t  digitSelect   = 1;
/// @brief Global variable to keep count of the number of milliseconds a switch is pressed.
volatile uint8_t  switchTimeout = 0;
/// @brief Global variable to hold the initial time that is reduced by ramp_delay.
volatile uint8_t  initTimeout   = INIT_DELAY;
/// @brief Global variable to hold the number of milliseconds passed.
volatile uint16_t milliseconds  = 0;
/// @brief Global variable to hold the number of previous milliseconds passed.
volatile uint16_t prev_milliseconds  = 0;
/// @brief Global variable to hold the number of seconds passed.
volatile uint8_t  seconds       = 0;
/// @brief Global struct to hold the current time.
volatile struct   time gs_timeKeeper = {0,0,0,0};
/// @brief Global struct to hold the current alarm set time
volatile struct   time gs_alarmKeeper = {0,0,0,0};
/// @brief Global variable to tell if the alarm is on.
volatile uint8_t  alarm_on_off        = OFF;
/// @brief Global variable to store the current tone set from clock divider to 4051 router.
volatile uint8_t  alarm_tone          = 0;

/// @brief function to flash clock at 00:00 on/off per second till time set pressed. Indicates power
outage and the clock needs to be set.
inline void waitForTimeSet();

/// @brief main entry point for program.
int main(void)
{
  /// @brief local variable to store previous digitSelect value. Only set ports when it changes to
  keep application from resetting values needlessly.
  uint8_t prev_digitSelect = 1;

  // Setup 89s51 for timer 0, counter 1, and interrupt enable.
  TMOD  = 0x51;
  TH0   = TH0_START;
  TL0   = TL0_START;
  TH1   = TH1_START;
  TL1   = TL1_START;
  // enable interrupts
  ET0   = 1;
```