ULBS

Universitatea “Lucian Blaga” din Sibiu

FACULTATEA DE INGINERIE HERRMANN OBERTH

MASTER-PROGRAM „EMBEDDED SYSTEMS“

Embedded Systems Architecture

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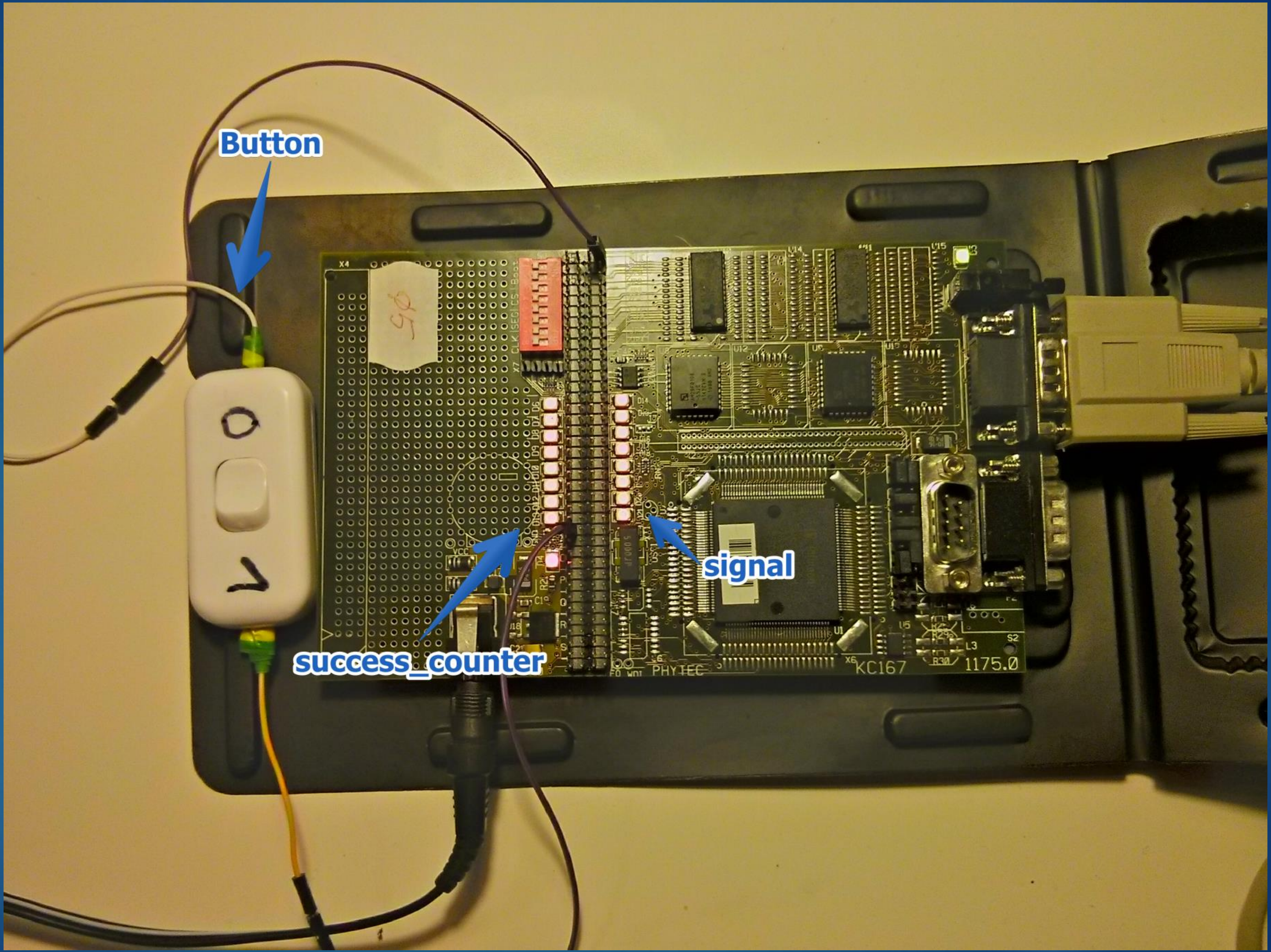
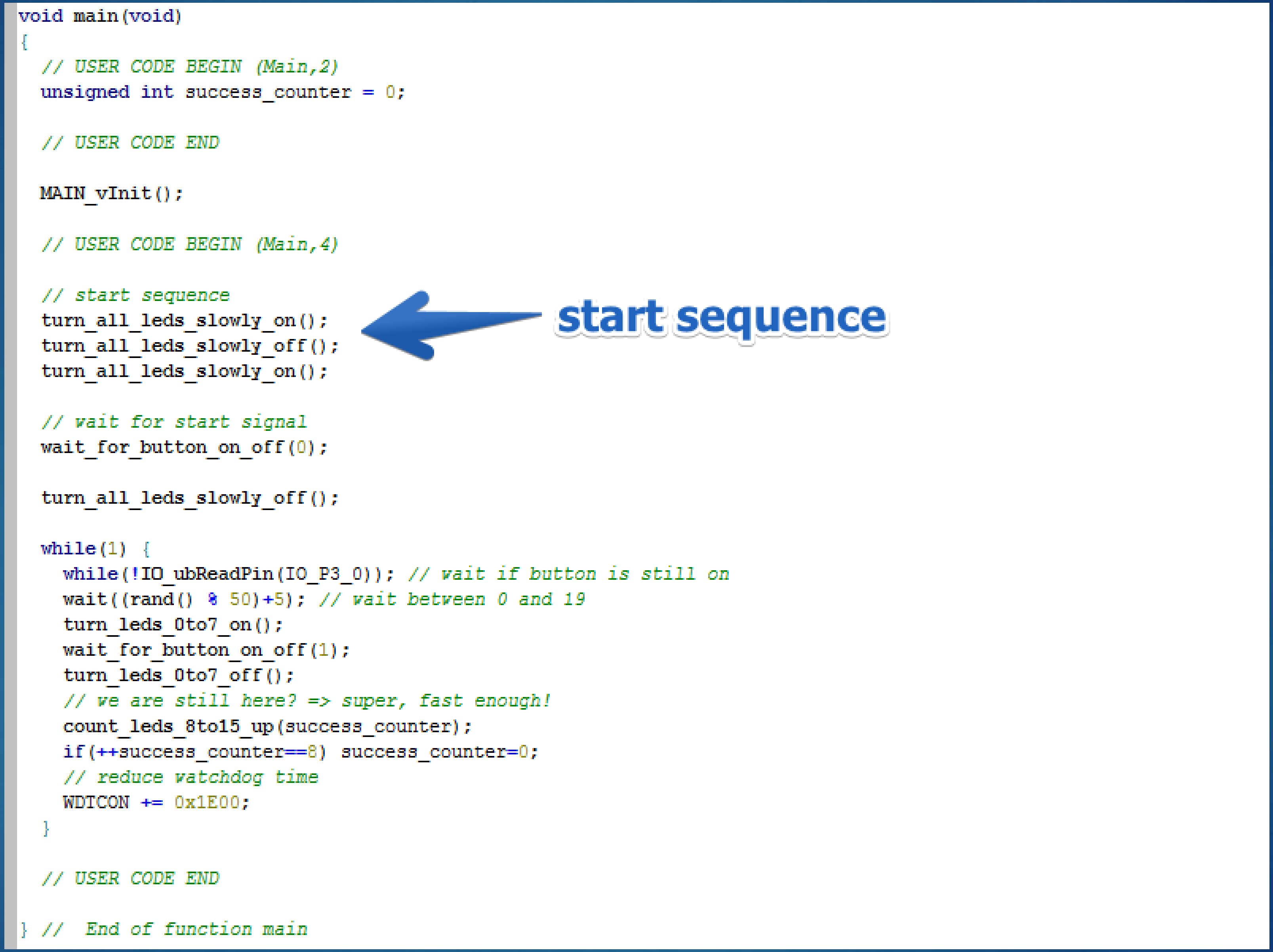
Demo

Watchdog-Game

Watchdog-Game: **Idea**

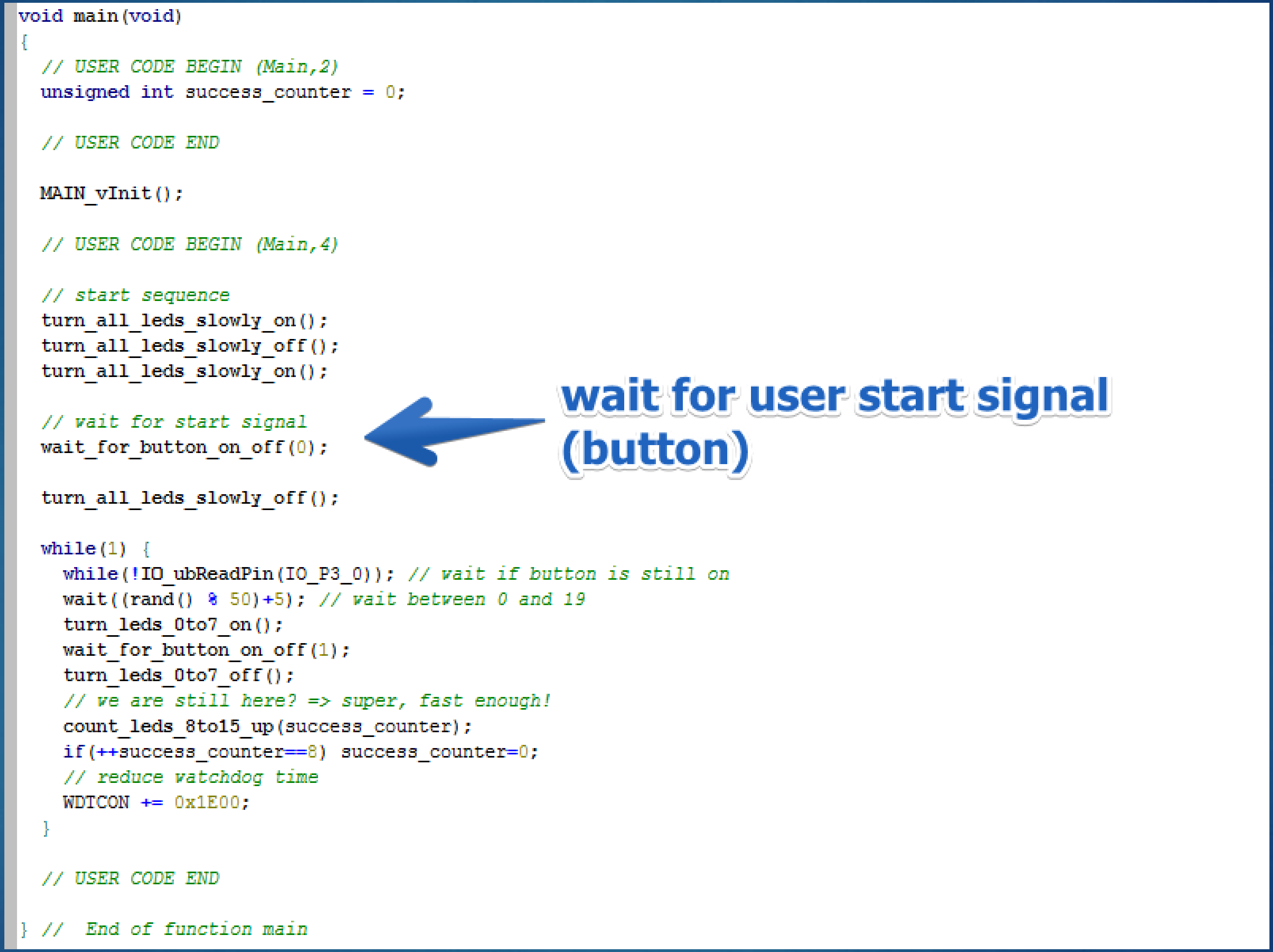
- Show **LED-signal**
- If **users reaction** is fast enough:
  - Next level ⇒ less time
- **Otherwise**:
  - Try again ⇒ reset by Watchdogtimer


Button
success_counter
signal
PHYTEC
KC167
1175.0



```c
void main(void)
{
  // USER CODE BEGIN (Main,2)
  unsigned int success_counter = 0;

  // USER CODE END

  MAIN_vInit();

  // USER CODE BEGIN (Main,4)

  // start sequence
  turn_all_leds_slowly_on();
  turn_all_leds_slowly_off();
  turn_all_leds_slowly_on();

  // wait for start signal
  wait_for_button_on_off(0);

  turn_all_leds_slowly_off();

  while(1) {
    while(!IO_ubReadPin(IO_P3_0)); // wait if button is still on
    wait((rand() % 50)+5); // wait between 0 and 19
    turn_leds_0to7_on();
    wait_for_button_on_off(1);
    turn_leds_0to7_off();
    // we are still here? => super, fast enough!
    count_leds_8to15_up(success_counter);
    if(++success_counter==8) success_counter=0;
    // reduce watchdog time
    WDTCON += 0x1E00;
  }

  // USER CODE END

} //  End of function main
```

start sequence



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  // wait for start signal
  wait_for_button_on_off(0);

  turn_all_leds_slowly_off();

  while(1) {
    while(!IO_ubReadPin(IO_P3_0)); // wait if button is still on
    wait((rand() % 50)+5); // wait between 0 and 19
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    WDTCON += 0x1E00;
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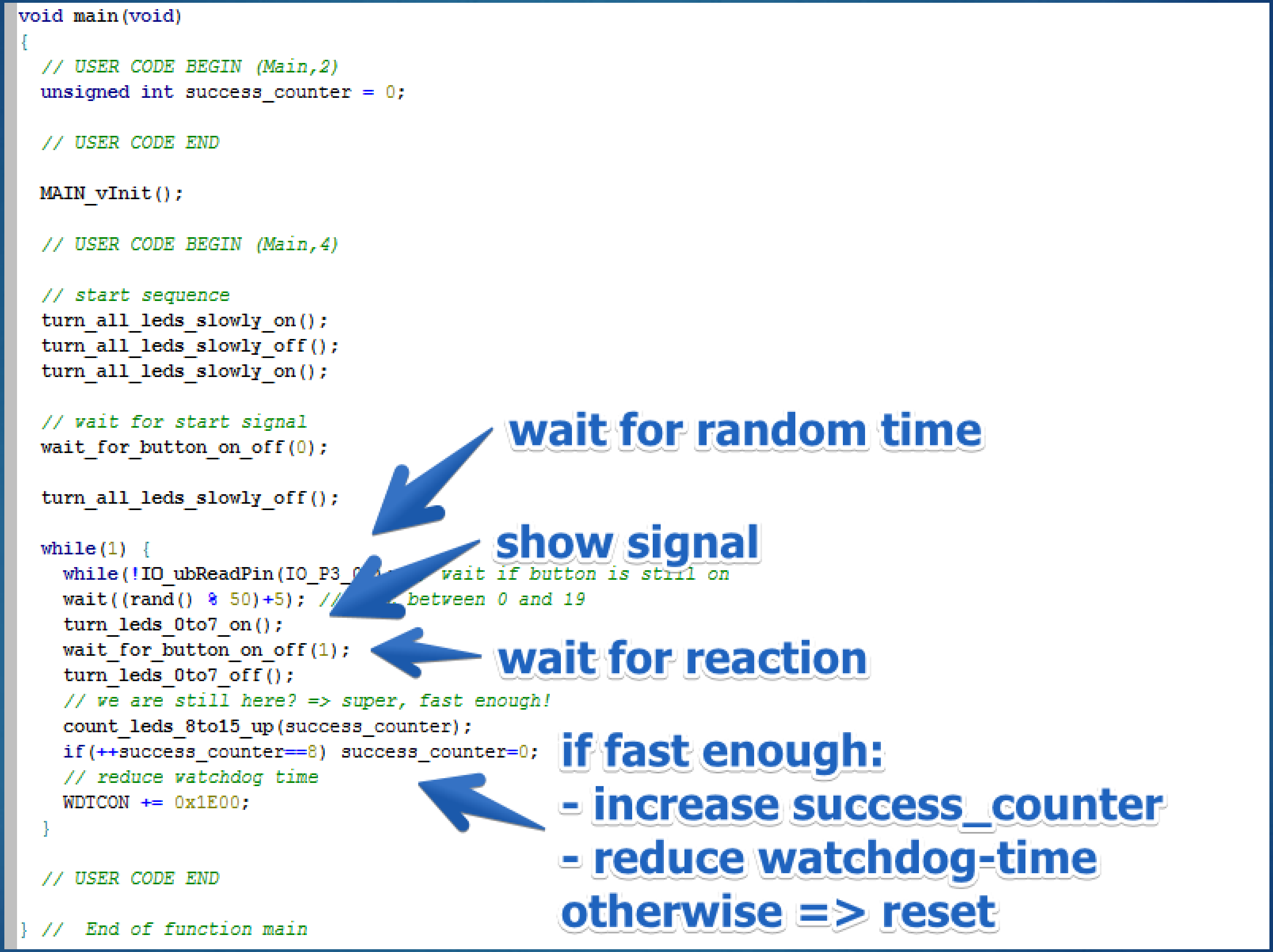
  // USER CODE END

} //  End of function main
```

wait for user start signal (button)



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  // wait for start signal
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  turn_all_leds_slowly_off();

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    if(++success_counter==8) success_counter=0;
    // reduce watchdog time
    WDTCON += 0x1E00;
  }

  // USER CODE END

} //  End of function main
```

wait for random time

show signal

wait for reaction

if fast enough:

- increase success_counter
- reduce watchdog-time

otherwise => reset