NMLB

No Model Left Behind

A DIY battery-powered lost model alarm.

Allows to find the model even if the battery is ejected.

By modifying the '*bz_mode*' flag in the code to '*const int bz_mode = 2;*' the buzzer can instead be controlled via a PWM signal (buzzer on if PWM is above 1800).

Instructions

1. Switch ON the alarm while the model is OFF. 1 blink every 3 seconds.

2. Plug the lipo to the model, after 5 seconds the alarm is armed. 2 blinks every 3 seconds.

3. Once the lipo on the model is removed, to put the alarm in idle mode plug the lipo back again briefly (for less than 5 seconds).

4. If the lipo is ejected in flight, after 3 minutes the alarm will start beeping a SOS signal, allowing to find the model.

5. Once it has been found, either switch off the alarm or plug briefly back the lipo for less than 5 seconds to put it in idle mode.

Modes

Start

As soon as it is switched on, it checks the internal lipo and gives feedback (each beep is associated with the LED turning on):

- *1 long beep* → 3.8V < Vbat < 4.0V.
- *2 long beeps* → 3.5V < Vbat < 3.8V.
- *3 long beeps* → Vbat < 3.5V.

If Vbat < 4.0V the charging function is activated.

After these initial checks, it makes *2 short beeps*.

IDLE mode - NMLB on, model power off.

- The LED blinks 1 time every 3 seconds.
- After 1 minute it goes in sleep mode.

SLEEP mode - In this mode the buzzer consumes only ~3µA, allowing it to stay active for several months.

Every 4 seconds it checks the status and then goes back to sleep.

FLY mode - NMLB on, model power on.

- When the model is turned on, it makes a *long+short+long series*.
- After 5 seconds, the lost-model alarm function is armed.
- The LED blinks twice every 3 seconds.

ALARM mode - Model power is lost and alarm was armed.

- It waits for 3 minutes, blinking the LED four times every 3 seconds.
- After the minute, it beeps a SOS (. . . _ _ _ . . .) every 5 seconds until the internal battery is drained, or the model is found.