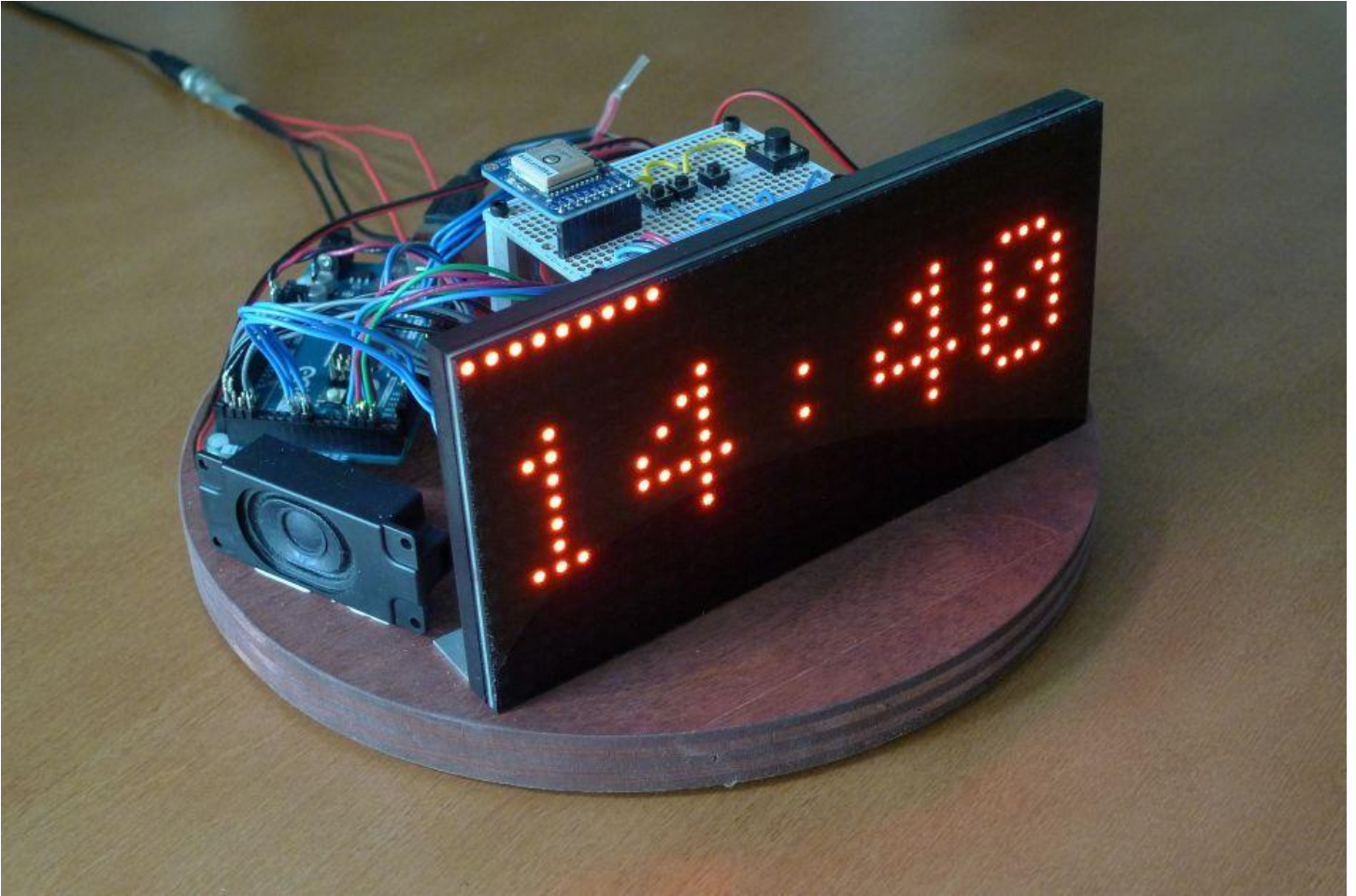


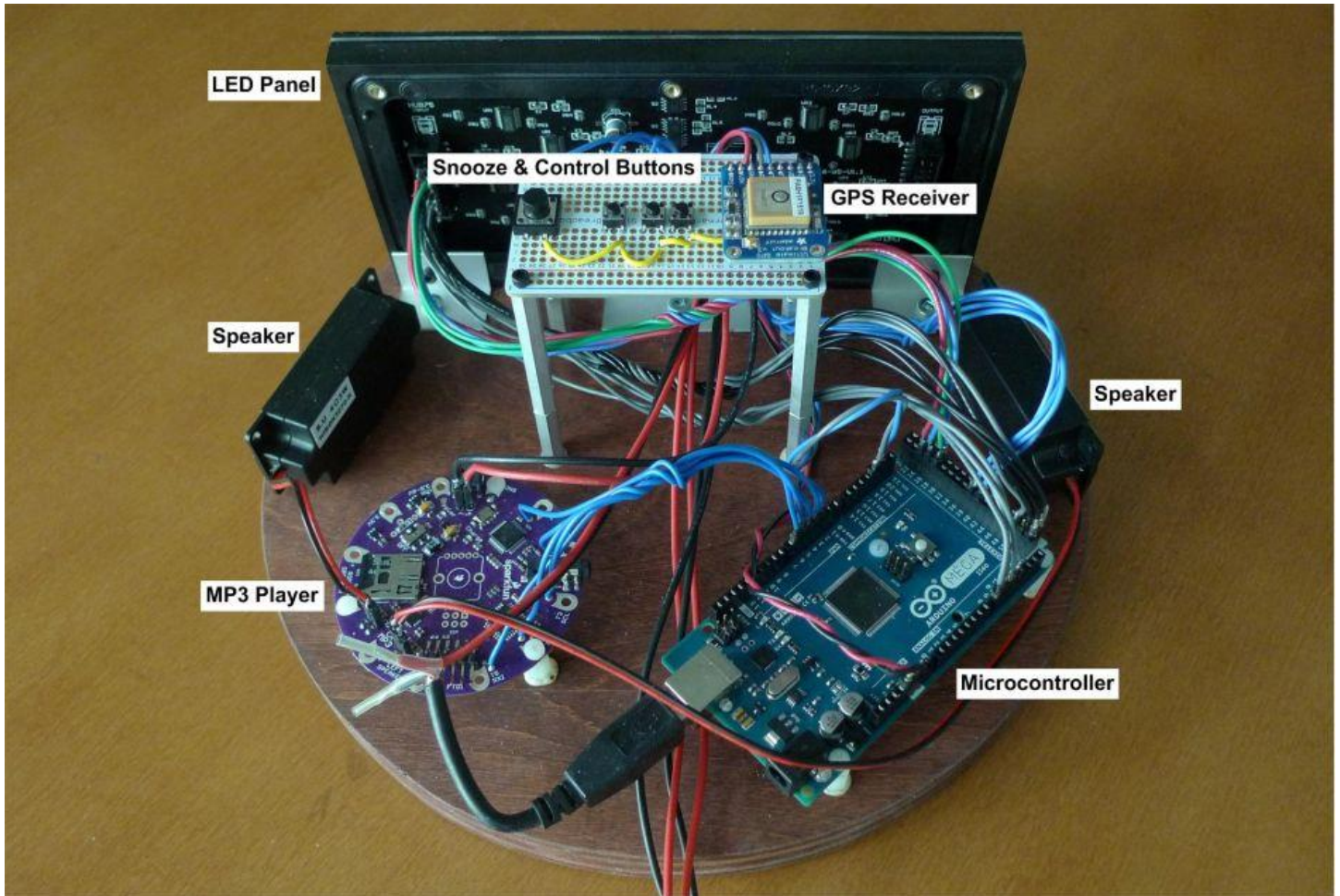
GPS/MP3 Alarm Clock



The GPS/MP3 Alarm Clock

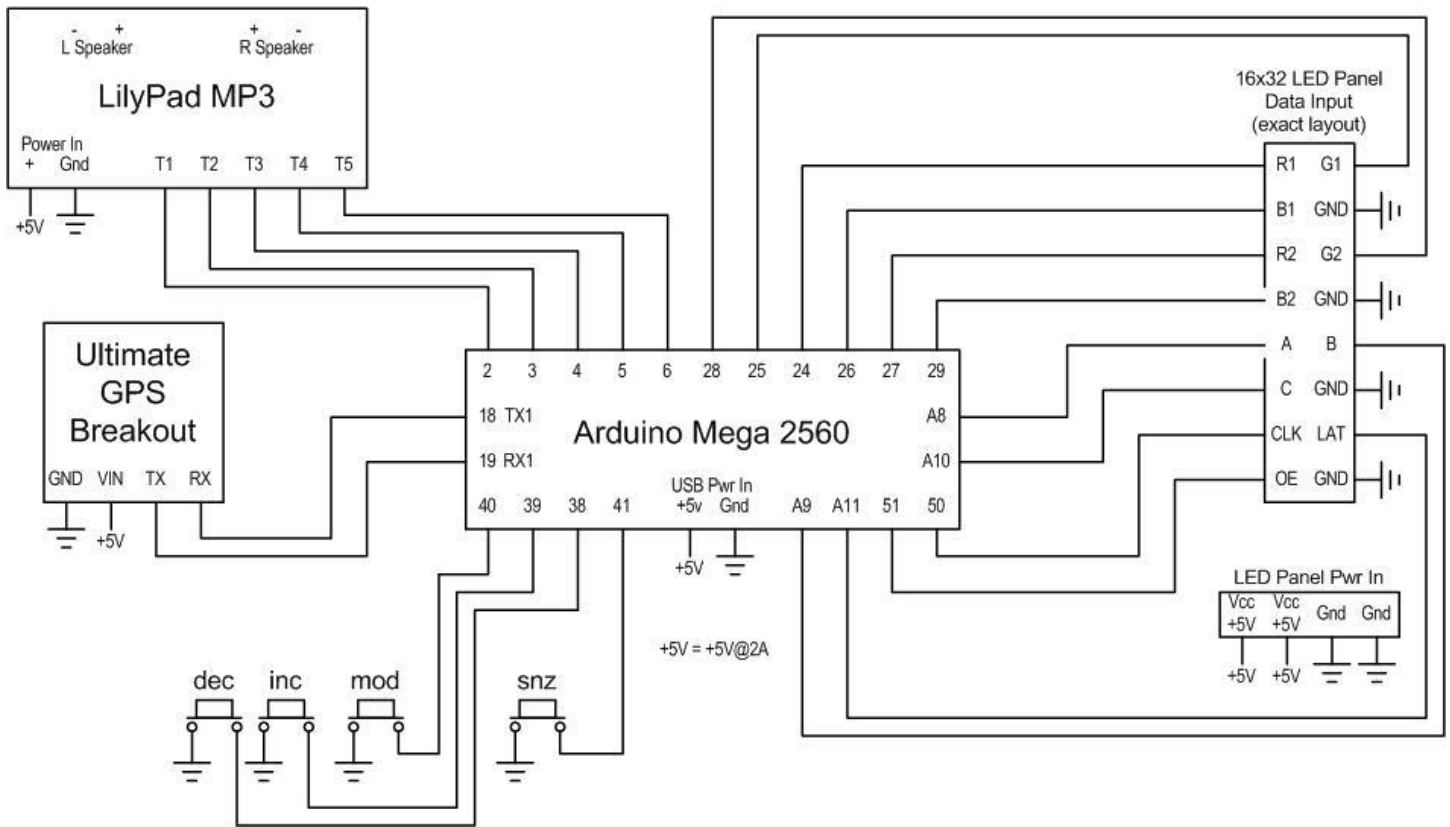
- ▶ Combines a 32x16 RGB LED panel for display, GPS receiver module as a time source, MP3 playback module and speakers for sound, and a microcontroller board for control, along with a few buttons.
- ▶ Custom sound files, each typically 10-20 seconds long, were created, or sampled from interesting sources, and then stored on the MP3 player for different wakeup scenarios.
 - Each sound file plays back starting at the set alarm time, and then repeats at a user-set interval.
- ▶ There is a snooze button, and three adjustment buttons with associated panel display screens.
 - Pressing the snooze button will start the snooze process for the user-preset time; holding the snooze for an extended time (2s) will cancel the alarm.
 - Settings adjustment is possible for: alarm on/off, alarm start time, alarm sound selection, time/daylight zone, snooze duration, alarm sound repeat interval, total alarm duration, display brightness, display colour.
- ▶ From a cold start, the GPS module acquires accurate time within a few 10's of seconds of power-up.
 - Locking to satellite data streams sufficient for a location fix occurs within a few minutes; the number of locked satellites is shown in a bar graph on the normal LED panel time display. (The location data is not currently used in any other way by the alarm clock system.)

GPS/MP3 Alarm Clock



Rear overhead view of the GPS/MP3 Alarm Clock, with significant components labelled

GPS/MP3 Alarm Clock



Schematic of GPS/MP3 Alarm Clock