

## RA Ecosystem Partner Solution LVGL Embedded UI Library



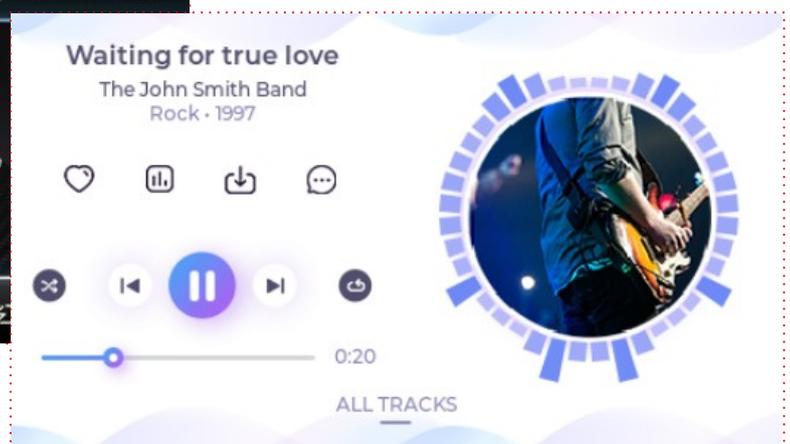
### Solution Summary

Light and Versatile Graphics Library (LVGL) is the most popular free and open-source embedded graphics library to create beautiful User Interfaces (UIs) for any MCU, MPU and display type. It makes UI development easier with 30+ built-in widgets, anti-aliasing, animations, multi language, including Arabic and Persian text, encoder and keypad usage and more. LVGL provides built-in support for Renesas graphics accelerator and drawing engines, offloading the MCU/MPU during rendering. Support is available now for the [RA8D1 MCU evaluation kit](#) and expanding to cover suitable [RA MCU](#) family devices.

### Features/Benefits

- Full featured – 30+ built-in widgets, powerful style and layout system, typography support for many languages
- Free and Popular – Distributed under MIT license and free for commercial projects, is downloaded every minute from GitHub
- Any device, OS, display – For any microcontroller, processor and (RT)OS to drive OLED, ePaper, and TFT displays or monitors
- Services – Worry-free UI development via consulting, design and implementation services

### Diagrams/Graphics



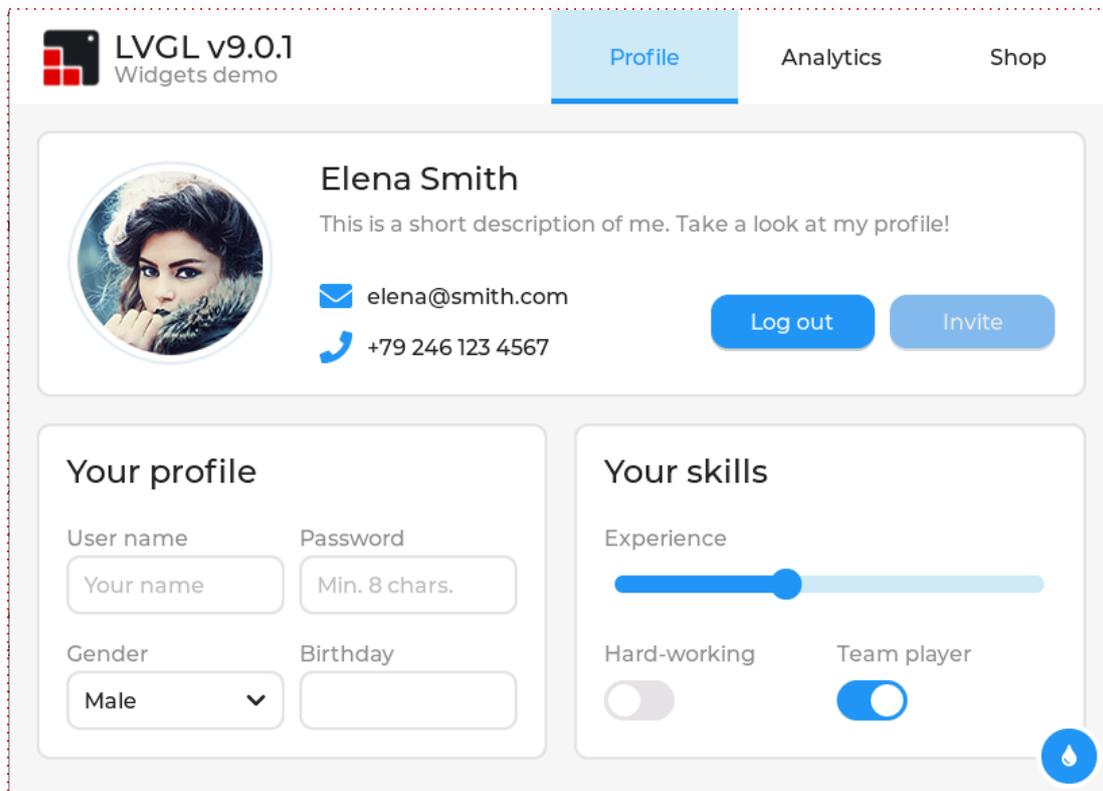
### Target Markets and Applications

- Internet of Things (IoT) devices
- Wearable technology
- Home automation and smart devices
- Medical and healthcare applications
- Industrial control systems
- Consumer electronics
- Point-of-sale (POS) terminals
- Kiosks

<https://lvgl.io>



- **Many Widgets** LVGL comes with 30+ built in widgets, such as Arc, Bar, Calendar, Chart, Checkbox, Drop-down list, Keyboard, Meter, Message box, Switch, Table, Tabview, Text area.
- **Rendering features:** LVGL comes with powerful software render engine which can draw anti-aliased widgets, and vector graphics using minimal resources. The GPUs can work together effectively with software rendering.
- **Powerful styles:** Choose from 100+ CSS inspired style properties to style the widgets run-time, change theme, or animate the style properties.
- **Responsive layouts:** Use web inspired Flexbox and Grid layout engines to position the widgets automatically in a responsive way.
- **Fonts and texts:** By supporting UTF-8 encoding, Right-to-Left writing systems, and translations, localizing the UI is not an issue.



## Minimal requirements

- **Clock speed:** > 64MHz
- **RAM:** 4kB + 150byte / widget (~48kB for a UI with a few screens)
- **Flash:** ~100kB for LVGL (depends on the enabled features)
- **Draw buffer:** > 1/10 screen size buffer for rendering
- **Frame buffer:** at least 1 frame buffer in a display controller, internal- or external RAM
- **Compiler:** C99 or higher
- **Build system:** LVGL has no external dependencies. Just copy it into your project and compile it with the other files of your project