Lightweight and Portable Cross-Platform Application Development Framework

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Cross-platform application development is extremely useful among software developing organizations because large end-user audience can be targeted. Earlier there were several approaches, but they had drawbacks of each like complexity of design, low level accessibility and slowness of learning rate. Later, cross-platform application development with web technologies were introduced. Electron and NW.js are the most popular frameworks. Those combine embedded chromium browser and node runtime. Community pointed out several unseen drawbacks of these frameworks. Large bundled application size, high memory consumption and development workflow are the key things which were criticized through internet forums. Possible solution is that introducing a new cross-platform application development framework which is having all the advantages of Electron and NW.js but which is lightweight and portable. Importantly each platform has built-in browser component which can be used instead embedded chromium. Windows has MSHTML and Linux has gtk-webkit2. Furthermore, there is a default web browser in each platform too. Therefore, chromium module can be replaced with either user's web browser or web browser component. Node runtime can be replaced with a lightweight web server. This research introduces a new framework architecture which delivers implementation of portable, lightweight cross-platform application development framework including the proof of using top frontend frameworks. The new framework uses browser component or user's browser instead of embedded chromium and it will replace node runtime by introducing a lightweight server runtime which exposes required OS level functions. Application development kit consists of launchers per each platform, a HTML interface and source files (Javascript and CSS). Key highlighted advantages of new framework architecture design are light-weightedness, fully portability, less resource consumption and easiness of development workflow.

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