**POS machines for Empower Jarvis EVD**

The objective is to build Point Of Sale (POS) machine software for Empower Telecommunications and Technology Limited to allow them to vend prepaid vouchers from the Empower Jarvis Backend and Front End solution.

**Work Specification (Phase 1)**

There are 2 machines identified for this Software Development which will work on USSD, GPRS & WIFI:

1. **MobiWire Mobiprint 2 (MP2) – FALCON POS SOFTWARE**

This machine uses the Java 2 Platform Micro Edition (J2ME) at language level 1.4 and a proprietary MobiWire SDK (MP2 Developer's pack version 16) and API (MP2 printer API version 1.1). The functionality to be developed will be:

* Registration (merchant registration, cashier registration) and Login (cashier/admin login)
* Check and update voucher menu **[GPRS & WIFI ONLY]**
* Check merchant balance **[ADMIN ONLY]**
* Menu navigation (back/forward, “please wait” screen, Empower splash screen)
* Account Settings (change merchant & cashier username/password) **[ADMIN ONLY]**
* Voucher purchase
* Receipt Printing (Voucher Purchase, Reprint Last Voucher)
* Error handling (pop ups alerts, retries, messages, SIM swapping)
* System update (downloading and installing latest update) **[GPRS & WIFI ONLY]**
* Connection management (SIM swapping, USSD/GPRS)
* Settings menu (change username/password/name, enable/disable SIM switching)
* Graphics design (icons, alerts, pop ups, splash, logos, loading signs).
* Query Transaction (Recover voucher by transaction ID, Recover voucher by Serial Number)

1. **MobiWire Mobiprint 3 (MP3) – VISION POS SOFTWARE**

This machine uses the Android 4.2.2 Jelly Bean and a proprietary MobiWire SDK for the printer (currently unavailable). The functionality to be developed will be:

* Registration (merchant registration, cashier registration) and Login (cashier/admin login)
* Check and update voucher menu **[GPRS & WIFI ONLY]**
* Check merchant balance **[ADMIN ONLY]**
* Menu navigation (back/forward, “please wait” screen, Empower splash screen)
* Account Settings (change merchant & cashier username/password) **[ADMIN ONLY]**
* Voucher purchase
* Multi voucher purchase
* Receipt Printing (Voucher Purchase, Reprint Last Voucher)
* Error handling (pop ups alerts, retries, messages, SIM swapping)
* System update (downloading and installing latest update) **[GPRS & WIFI ONLY]**
* Connection management (SIM swapping, USSD/GPRS)
* Settings menu (change username/password/name, enable/disable SIM switching)
* Graphics design (icons, alerts, pop ups, splash, logos, loading signs).
* Query Transaction (Recover voucher by transaction ID, Recover voucher by Serial Number)

**Project Timetable**

The Falcon POS software (MP2) is easier to estimate for because we have the SDK & API and worked on several tasks. We don’t currently have the Vision POS API so time estimation may not be as accurate. The backend will also need a few minor changes during the development for additional features (query transaction) and USSD processing of requests in addition to other unknown changes that will arise during the development, however, the backend time estimation is reasonably predictable. The table below is the estimated development time. Tasks highlighted in green are partially implemented already. **1 week is 5 days of development time**, but we may work weekends to try to reduce the timeframe.

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Falcon POS Dev Time** | **Vision POS Dev Time** | **Backend Dev Time** |
|  |  |  |  |
| Registration | 5 Days | 5 Days | 5 Days |
| Login | 5 Days | 5 Days | 5 Days |
| Update Menu | 5 Days | 5 Days |  |
| Check Merchant Balance | 2 Days | 2 Days | 1 Day |
| Menu Navigation | 5 Days | 5 Days |  |
| Voucher Purchase | 5 Days | 5 Days |  |
| Account Settings | 6 Days | 6 Days | 4 Days |
| Multi-voucher Purchase |  | 5 Days | 4 Days |
| Receipt Printing | 4 Days | 5 Days |  |
| Error Handling | 10 Days | 10 Days |  |
| System Update | 5 Days | 5 Days | 4 Days |
| Connection Management | 3 Days | 3 Days |  |
| Settings Menu | 3 Days | 3 Days |  |
| Graphics Design | 3 Days | 6 Days |  |
| Query Transaction | 2 Days | 2 Days | 3 Days |
|  |  |  |  |
| **Total** | **63 Days (12.6 Weeks)** | **72 Days (14.4 Weeks)** | **26 Days (5.2 Weeks)** |
| **Optimistic Total Time** | **40 Days (8 Weeks)** | **72 Days (14.4 Weeks)** | **20 Days (4 Weeks)** |

**Optimistic Time (Falcon POS only) : 8 + 4 Weeks = 12 Weeks = 3 Months**

**Optimistic Total Time (Falcon POS + Vision POS) : 8 + 14.4 + 4 Weeks = 26.4 Weeks = 6.6 Months**

**Estimated Time (Falcon POS only) : 12.6 + 5.2 Weeks = 17.8 Weeks = 4.45 Months**

**Estimated Total Time (Falcon POS + Vision POS) : 12.6 + 14.4 + 5.2 Weeks = 32.2 Weeks = 8.05 Months**

At this point, **there is also an unknown element of individual network integrations for USSD**. If we must individually integrate into each network, **there may be an addition 1 week required for each network additional to the total project timeline**. Much of this cannot be accurately estimated because it requires contracts with the networks, security provisioning (usernames & passwords issued, firewall configuration etc.) and them pointing a test URL to our system then a live URL to our system which are all out of our control. **Development time may be speeded up by subscribing to a USSD aggregator that already has integrations into all the networks**, however, the cost may be slightly higher, and the code may perform slightly slower.

**Future Enhancements (Phase 2)**

**Phase 2 of the Development is not included in this development** but is a list of proposed features that may assist in reducing queries to the company and allow easier vending by making merchants more self sufficient. It is not to be developed and will not been billed as part of this development until after the core features are stabilized and the go ahead is given by Empower to begin. The list of proposed additional features includes:

* Checking airtime balance on the SIM cards
* Changing receipt text (to add adverts, new recharge instructions and company news)
* Change APN settings (to fix connectivity settings to work on custom APN)
* Change server URL
* Enable/Disable SSL