**Requirement Analysis Document**

**Subsystem:** Motor Firing System

**Last revision date:** 14-02-2023

**Document status:** Draft

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***Abbreviations:***

***CPM - Central Processing Module***

***MFS - Motor Firing System***

***Revision history:***

*1. First draft completion- 01/02/2023*

*2. Changed the requirements (onboard power supply cannot power the igniter), Addition of human interaction and indication requirements - Thiruvarulselvan K - 12/02/2023*

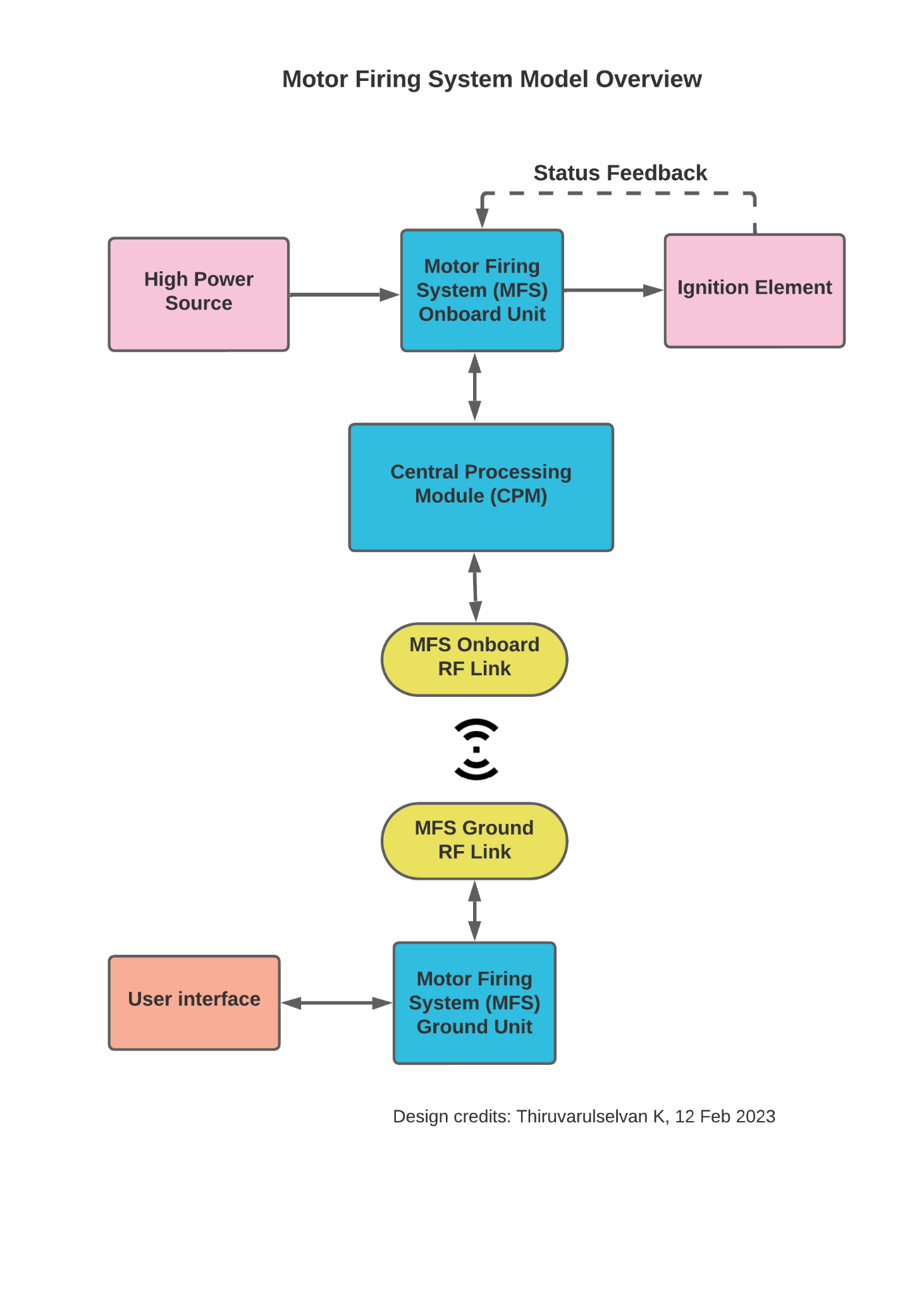
*3. Update the requirements and system model, two individual units in MFS - Thiruvarulselvan K - 14/02/2023*

**Purpose of the subsystem:**

MFS - Fires the motor on launch command from the ground control station.

| **Type** | **Requirement** | **Priority** |
| --- | --- | --- |
| **(Functional, Technical, Operational)** | **(Core, Essential, Desired)** |
| Functional | Fire the motor on launch command from the user using the onboard high voltage power source | Core |
| Functional | Effectively handle any failure of the firing system beforehand and update the system status to the ground | Core |
| Functional | Shall have safety features for handling any accidental launch or short circuit events | Desired |
| Operational | The MFS onboard unit should sense the status of the motor firing element and high power source | Desired |
| Operational | The MFS ground unit should interact with the user to receive launch commands | Core |
| Operational | The MFS onboard unit should fire the motor when remotely commanded by the MFS ground unit. | Core |
| Operational | Indicate the onboard system status to the ground unit wirelessly via RF link. | Essential |
| Operational | The ground unit shall have various indication elements to ease the process of user understanding of the system status | Desired |
| Technical | The MFS should be able to handle the high power flow to the igniter and should be galvanically isolated from the high voltage system | Essential |
| Technical | The microcontroller should be powered by the same power source as the igniter | Desired |

**Subsystem model:**

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