

Requirements list				
Req No.	Requirments	Type	Verified/Compliant	Method of Verification
Keypad Access Control				
MISSU-F-01	The system shall accept a 4-digit PIN code from the user.	Functional	Yes	Keypad testing and code validation
MISSU-F-02	The system shall unlock the door when a correct code is entered.	Functional	Yes	Simulation and functional tests
MISSU-F-03	The system shall display feedback on the LCD during key entry.	Functional	Yes	LCD display testing
Locking Mechanism Control				
MISSU-F-04	The system shall activate a motor to lock the unit when prompted.	Functional	Yes	Motor actuation testing
MISSU-F-05	The system shall activate a motor to unlock the unit after successful authentication.	Functional	Yes	Motor actuation and keypad input tests
Mount/Dismount Operation				
MISSU-F-06	The system shall respond to a toggle switch to activate "mounting" or "dismounting" functions.	Functional	Yes	Switch input testing
MISSU-F-07	The system shall drive motors in opposing directions for mounting and dismounting.	Functional	Yes	Simulation with manual switch activation
Feedback and Status Display				
MISSU-F-08	The system shall display current status (e.g., "Locked", "Unlocked", "Mounting...") on the LCD.	Functional	Yes	LCD operation and feedback testing
MISSU-F-09	The system shall activate visual indicators (LEDs) and audible feedback (buzzer) during lock/unlock events.	Functional	Yes	Visual and audio output testing
Security Handling				
MISSU-F-10	The system shall deny access after incorrect PIN entry.	Functional	Yes	Simulation tests for incorrect codes
Manual Reset Option				
MISSU-F-11	The system shall provide a method to reset the device manually (e.g., power cycle or reset pin).	Functional	Partial	Manual reset by cycling power (software reset pending)
Reliability				
MISSU-NF-01	The system should operate consistently with at least 95% uptime.	Non-Functional	Partial	Software stability confirmed, hardware not fully validated
MISSU-NF-02	The locking/unlocking mechanism should function correctly in all environmental conditions intended for home installation.	Non-Functional	Not tested	Physical environmental testing not conducted
Power Efficiency				
MISSU-NF-03	The device should operate for a minimum of 48 hours on battery backup.	Non-Functional	Partial	Estimated via battery specifications (full test pending)
MISSU-NF-04	The system should minimize power usage when idle.	Non-Functional	Partial	Low idle current achieved in design
Security				
MISSU-NF-05	The system shall not store PIN codes in plain text.	Non-Functional	Yes	Code design ensures PIN not saved in plain text
MISSU-NF-06	The system shall not unlock the door unless the full code is correctly entered.	Non-Functional	Yes	Verified through keypad and code matching tests
User-Friendly				
MISSU-NF-07	The system shall provide clear feedback through the LCD and indicators.	Non-Functional	Yes	User interface tested visually and audibly
MISSU-NF-08	The keypad layout shall be intuitive and easily accessible.	Non-Functional	Yes	4x3 keypad user-friendly during tests
Scalability				
MISSU-NF-09	The design should allow future integration of remote access or wireless alert features.	Non-Functional	Partial	Hardware modular, software extendable
Maintainability				
MISSU-NF-10	All components should be easily replaceable or serviceable.	Non-Functional	Yes	Modular circuit design (L293D, LCD, etc.)
MISSU-NF-11	Code should be documented and modular for easy updates.	Non-Functional	Yes	Code separated into functions with comments
Durability and Environmental Resistance				
MISSU-NF-12	The unit shall be water-resistant and capable of operating between -10°C and 50°C.	Non-Functional	Not tested	Environmental testing not performed