

System State Machine

State ID	State Name	Description
S0	IDLE	Default standby state. System is waiting for commands. No active operations.
S1	WAITING_FOR_AUTH	Awaiting fingerprint authentication or trusted signal from cabinet to proceed.
S2	AUTH_FAILED	Authentication failed. User is notified via UI; reset or retry allowed.
S3	AUTH_SUCCESS	Authentication successful. Trigger permission to continue with user-selected operation.
S4	COMMAND_REQUESTED	UI has requested a command (e.g., load, unload, rotate). Not yet approved by the scheduler.
S5	QUEUED	Command is accepted but queued; another operation is in progress.
S6	IN_PROGRESS	Command is being executed (e.g., motor

		rotating to retrieve a watch).
S7	ERROR	Error occurred (mechanical jam, sensor failure, invalid state request, etc.).
S8	CONFIRM_LOAD	Waiting for user to confirm a watch is properly loaded in the cabinet.
S9	CONFIRM_UNLOAD	Waiting for user confirmation that a watch was removed or replaced.
S10	COMPLETED	Operation was completed successfully. Ready for next command.
S11	SHUTDOWN	System is going into controlled shutdown (e.g., triggered by software or hardware).
S12	MAINTENANCE_MODE	Entered via USB or hardware switch for diagnostics, calibration, or updates.
S13	PAIRING_MODE	Optional — if the UI and Pi need to pair/handshake initially for security.