

Figures

FIG. 1A – Smart Infusion Pump with Components

FIG. 1A: An example smart infusion pump (100) with its housing/user interface (110) and internal safety components: a controller (120), network communication interface (130), and audible alarm speaker (108).

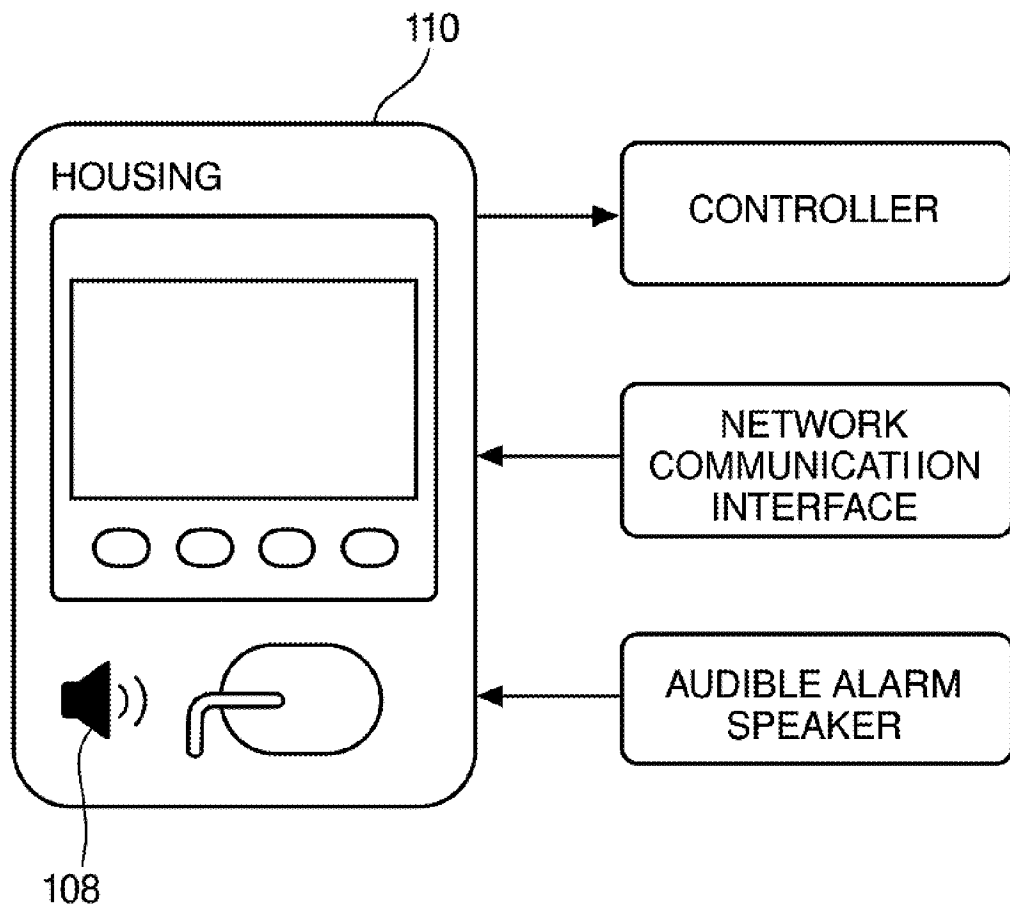


FIG. 1A

FIG. 1B – Pump Display Warning Prompt

FIG. 1B: Pump display screen (110) showing a warning message (115) that no drug library is selected for a high-alert medication infusion, along with a prompt (116) for the user to confirm or correct the programming.

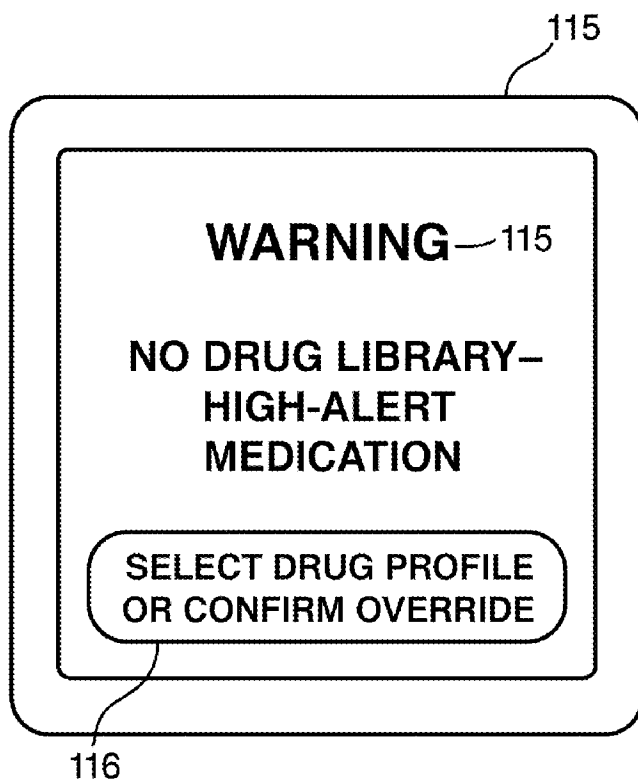


FIG. 1B

FIG. 2 – Networked Infusion Monitoring System

FIG. 2: Schematic of a networked system connecting multiple infusion pumps (100A, 100B) via a network (220) to a central monitoring server (200). The server interfaces with an electronic health record system (300) and remote client devices like a pharmacist's station (230) and a clinician's smartphone (232). Arrows illustrate data flows and alert transmissions between components.

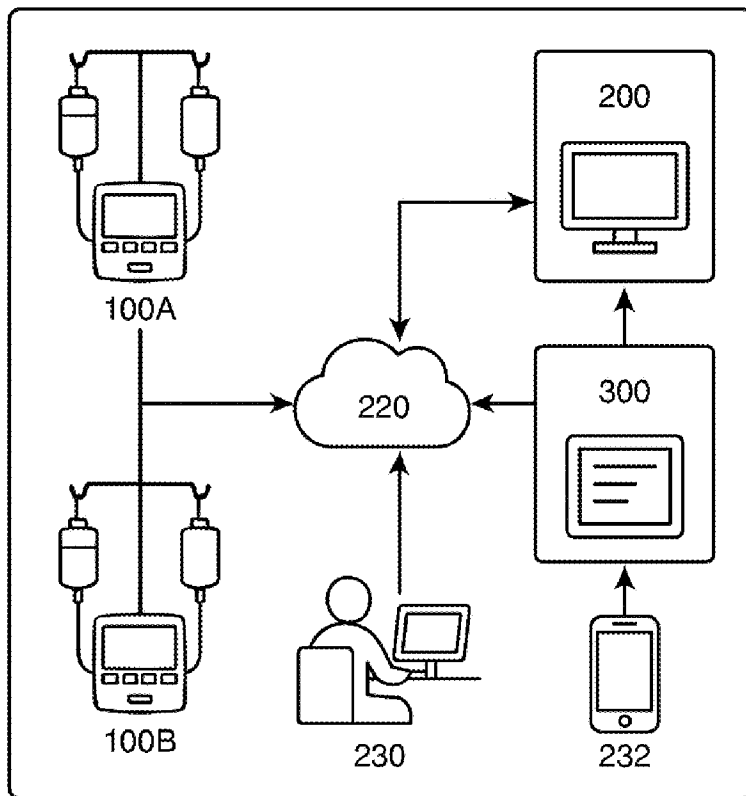


FIG. 2

FIG. 3 – Flowchart of Local Detection and Intervention

FIG. 3: Flowchart of the pump's real-time local monitoring and intervention process. The pump monitors its infusion status (step 302) and detects any drug library bypass condition (step 304). If a high-alert medication is running without the library, an on-pump alert/lockout sequence is triggered (steps 306–310) requiring user acknowledgment or reprogramming before infusion continues. The user can reprogram with the correct drug profile (step 312) or confirm an override (step 314).

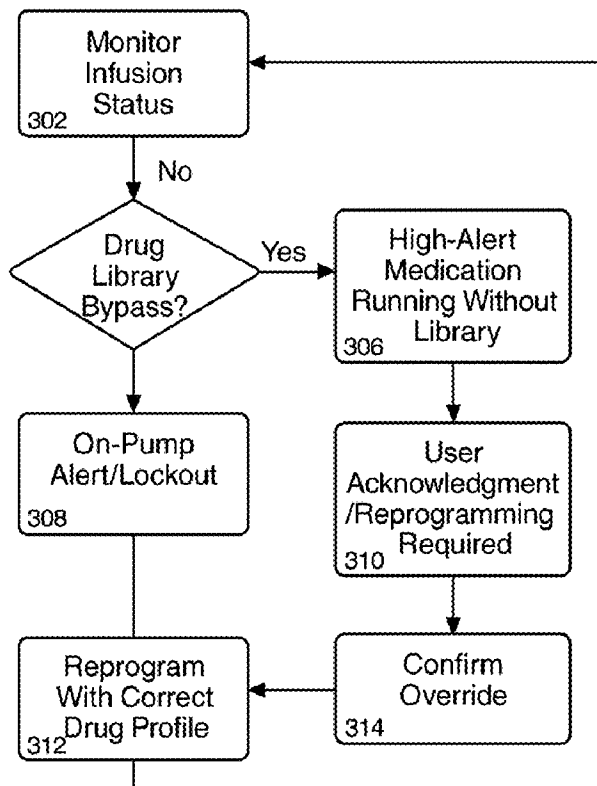


FIG. 3 – Flowchart of Local Detection and Intervention

FIG. 3

FIG. 4 – Flowchart of Remote Escalation Process

FIG. 4: Flowchart of coordinated remote alert escalation. Upon detecting an unsafe infusion event (step 402), the system sends a notification to designated remote personnel/devices (step 404). If the issue isn't resolved in time (decision 406), the alert is escalated (step 408) – e.g. higher-level notifications – and secondary actions may occur (step 410, such as reminding the bedside clinician or pausing the infusion).

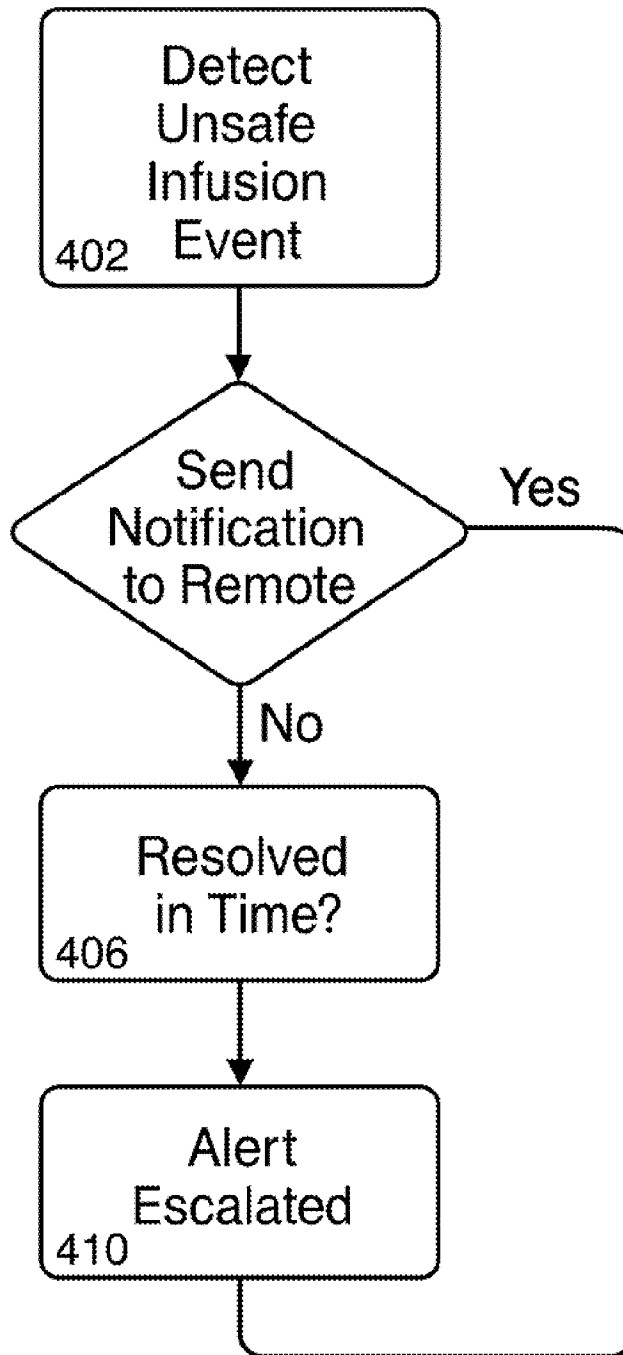


FIG. 4 – Flowchart of Remote Escalation Process

FIG. 4

FIG. 5A – Pump UI Prompt with EHR Integration

FIG. 5A: Pump interface prompt (500) when an matching medication order is found via EHR integration. The screen shows the identified order details (502) for the current infusion and offers a one-touch option (504) to automatically apply the correct drug library entry and dose from that order. An override option (506) is also provided if the user chooses to proceed without applying the order.

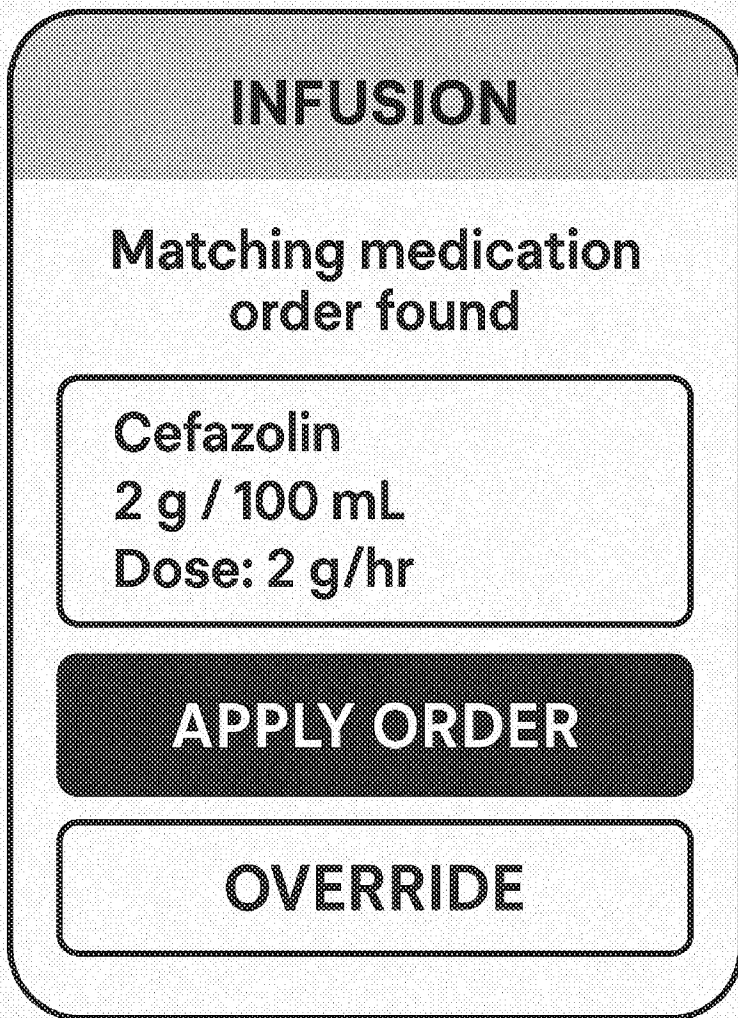


FIG. 5A

FIG. 5B – Remote Bypass Alert on Mobile Device

FIG. 5B: Example remote notification on a mobile device (510) for a library bypass alert. The alert message (512) displays the patient/pump details, the drug involved, and indicates that a high-risk infusion is running without the drug library. An acknowledgment button (514) is provided for the recipient to confirm receipt of the alert.

FIG. 5B – Remote Bypass Alert on Mobile Device

