CLAIMS

1. A method for controlling a flow of fluid through a drip chamber, the method comprising:
capturing, using an image sensor, a plurality of images of a drip chamber; estimating, using a processor, a flow rate through the drip chamber using the plurality of images;
receiving a desired flow rate from a user;
comparing, using the processor, the estimated flow rate with the desired flow rate;
determining, using the processor, a magnitude and a direction of valve actuation to achieve the desired flow rate; and
actuating a valve in accordance with the determined magnitude and direction, to achieve the desired flow rate;
wherein the valve actuation action comprises: providing a flexible tube having a lumen in fluid communication with the drip chamber; and using a valve to adjust pressure around a defined section of the flexible tube containing the lumen to thereby modify a shape of the lumen; wherein the pressure adjustment act comprises:
disposing a rigid housing around the defined section of the lumen; and engaging a plunger with a substantially incompressible filler material enclosed within the housing, wherein the material transfers the pressure created by the engaging plunger to deform the lumen.

2. The method of claim 1, further comprising the act of communicating the estimated flow rate to a fluid monitoring client.

3. The method of claim 1, further comprising the act of monitoring for unplanned events.

4. The method of claim 3, further comprising stopping flow when the unplanned event occurs.

5. The method of claim 1, further comprising deforming a flexible tube in fluid communication with the drip chamber to reduce its lumen size while the tube is being installed or removed from an apparatus performing this method.

6. The method of claim 5, further comprising removing a force deforming the tube, allowing the tube to reform to substantially its initial size after completion of the installation or the removal process of the tube is completed.

7. The method of claim 1, further comprising lighting a light to indicate the status of an apparatus performing this method.

8. The method of claim 7, wherein a first color of light is emitted when a pump of the apparatus is operating, a second color of light is emitted when fluid flow has been paused, and a third color of light is emitted when the pump has stopped.

9. The method of claim 7, wherein the light flashes every time a drip falls in the drip chamber having fluid communication with the valve.

10. The method of claim 1, further comprising displaying infusion information related to the method on a display.

11. The method of claim 1, further comprising outputting audio to inform an operator of an apparatus performing this method.