CLAIMS:

1. The intravenous therapy system of claim 4, wherein the IR camera is selectively removable from within the hollow portion of the hollow needle via the proximal end of the hollow needle.

2. The intravenous therapy system of claim 4, wherein the first light source emits a first wavelength of IR light between 940 nm and 980 nm.

3. The intravenous therapy system of claim 4, wherein the second light source emits a second wavelength of IR light between 630 nm and 780 nm.

4. A blood vessel detection system comprising:

a hollow needle comprising:

a distal end comprising a sharp tip for insertion into a vein, the hollow needle; and

a proximal end comprising an intravenous supply connection;

an infrared (IR) camera placed within a hollow portion of the hollow needle, comprising:

an IR detector;

a first light source to emit a first wavelength of IR light from the hollow portion; and

a second light source to emit a second wavelength of IR light from the hollow portion;

a comparator configured to, upon execution of a processor communicatively coupled to the comparator, compare an amount of emitted and reflected first and/or second wavelengths of IR light received at the IR detector during activation of the first and/or second light and provide an indication of light absorption within a vein;

an arm band communicatively coupled to the comparator, the arm band comprising a visual indicator comprising an indicator light to provide feedback to a user of the intravenous therapy system indicating an optimal insertion trajectory of the hollow needle into a body based on a detected level of reflected light by the IR detector.

5. The blood vessel detection system of claim 4, wherein the IR detector comprises a photodiode optically coupled to an optical fiber passed through the hollow of the hollow needle.

6. The blood vessel detection system of claim 4, wherein the first light source further comprises a first light-emitting diode (LED) optically coupled to an optical fiber passed through the hollow of the hollow needle.

7. The blood vessel detection system of claim 4, wherein the second light source further comprises a second light-emitting diode (LED) optically coupled to an optical fiber passed through the hollow of the hollow needle.

8. The blood vessel detection system of claim 4, wherein the IR camera emits the first wavelength of IR light at the first light source and, upon detection of the presence of a blood vessel by the comparator, the IR camera emits the second wavelength of IR light at the second light source.

9. The blood vessel detection system of claim 4, further comprising an audio indicator comprising a speaker to provide feedback to a user of the blood vessel detection system indicating an optimal insertion trajectory of the hollow needle into a body based on a detected level of reflected light by the IR detector.