SUMMARY

[0005] Implementations of the present disclosure extend at least to electrophoresis systems, components thereof, and/or methods associated therewith.

[0006] Some embodiments provide an electrophoresis system that includes a base module and a camera module. The base module includes a cassette slot for receiving a gel electrophoresis cassette. The base module also includes a light element that functions to illuminate the gel electrophoresis cassette when the gel electrophoresis cassette is positioned within the cassette slot. The camera module includes a camera and is selectively connectable to the base module to facilitate imaging of the gel electrophoresis cassette when the gel electrophoresis cassette is positioned within the cassette slot. The base module further includes a fan assembly. The fan assembly includes one or more fans configured to facilitate air cooling of contents of the gel electrophoresis cassette when the gel electrophoresis cassette is positioned within the cassette slot. One or more spring-loaded pin connectors facilitate electrical communication between the camera module and the base module when the camera module is selectively connected to a top portion of the base module. The base module further includes a viewing window configured to provide a view of the gel electrophoresis cassette when the gel electrophoresis cassette is positioned within the cassette slot. The base module further includes a perimeter wall extending upward from the viewing window and about a perimeter of the viewing window. The camera module defines an imaging chamber on an underside thereof. The imaging chamber is configured to be disposed over the viewing window when the camera module is selectively connected to the base module. The camera module further includes an engagement wall configured to reside over the viewing window and within a perimeter defined by the perimeter wall of the base module when the camera module is selectively connected to the base module.

[0007] In some embodiments, the base module includes a fan assembly configured to facilitate air cooling of a gel electrophoresis sample positioned within the base module.

[0008] In some embodiments, the base module includes an LED array arranged in a checkerboard pattern to facilitate improved illumination uniformity and/or smoothness.

[0009] In some embodiments, the base module and/or the camera module include(s) various connection and/or alignment features that facilitate rapid and/or efficient docking of the camera module to the base module.

[0010] In some embodiments, the camera module includes a camera adjustment stage that facilitates spherical joint adjustment of the image sensor.

[0011] In some embodiments, the camera module includes a focus adjustment assembly that facilitates focus adjustments when the camera module is mounted to the base module.

[0012] In some embodiments, the camera module includes one or more supercapacitors to facilitate backup powering of the camera module when the camera module is selectively disconnected from the base assembly.