The development of an integrated handrail system as specified below provides an improvement on visibility and ensures safety on stairs by emitting light through LED strips in both vertical directions.

CROSS SECTION

The LED strip holder will be such that it will fit into the inner portion of the steel pipe. Multiple segments of the LED strip holder will provide a firm platform for an aluminium strip to be mounted and subsequently provide a firm support for the entire LED strip.

Handrail modules will illuminate depending on the position of the user

Each module is 600 mm, several modules can be combined and connected into one handrail using aluminium connectors.

Aluminium connectors act as a wall mount providing stability to the handrail. There are caps at the ends of the handrail to finish off the design, and also stop debris entering the handrail.

PIR Sensor: HC-SR501 Human
Sensor Module Pyroelectric Infrared

The PIR sensor holder possess the ability to mount the PIR sensor and securing it in place with the use of two springs. The springs will ensure the PIR sensor to be firmly secured to the handrail and allowing the lens of the PIR sensor to protrude out of the handrail slightly to optimise the field of view of the PIR sensor.