Motorcycle Cornering Headlights

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Abstract:
In order for motorcycles to provide proper illumination when cornering at night, a motorcycle headlight with sequentially engaged supplementary LEDs will be manufactured by the Motorcycle Cornering Lights Team of 2014-2015. This improved motorcycle headlight will consist of a custom 12" headlight, powered by a 12-volt motorcycle battery, which will house the internal components and will be mounted to a motorcycle with aftermarket universal motorcycle mounts. The internals of the headlight will feature a set of 8 symmetrically placed parabolic cells which will each contain a supplementary LED via a wired base socket. All LEDs will be sequentially illuminated based on lean angle. In the center of the headlight there will be a larger additional parabolic cell, LED headlight, and wired base socket, which will act as the main headlight and will be protected using the pre-existing lens to seal the assembly. To trigger the illumination of the supplementary LEDs, an Arduino board will either engage or disengage the LEDs based on the data it receives from a peripheral gyroscope and accelerometer, which are programmed to sense the lean angle. With this sequentially based supplemental LED design, a motorcyclist will be able to adequately illuminate the road with cornering at night.