Development of an Autonomous Robotic Ultraviolet Sterilization System

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Abstract:
Infections are responsible for countless deaths and exert a significant burden, both economically and in terms of pain and suffering. The traditional methods of disinfecting surfaces using chemicals is generally effective but requires significant manual labor. One major failure mode involves operator error, where either a surface is missed, either by accident or because a surface proves hard to reach. Corners, grooves and areas beyond arm's reach tend to be missed during disinfection. The proposed system relies on ultraviolet light to kill germs. It employs a unique drive system and algorithm that allows it to navigate autonomously while disinfecting surfaces. The basic design and control strategy is presented along with the business case for this technology.