

## Generating Ideas to Improve Road Intersections Using Design with Intent Approach

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**Abstract :** Road safety has become an alarming issue, especially in low-middle income developing countries. The traditional approaches lack the out of the box thinking, making engineers confined to applying usual techniques in making roads safer. A socio-technical approach has recently been introduced in improving road intersections through designing with intent. This Design With Intent (DWI) approach aims to give practitioners a more nuanced approach to design and behavior, working with people, people's understanding, and the complexities of everyday human experience. It's a collection of design patterns —and a design and research approach— for exploring the interactions between design and people's behavior across products, services, and environments, both digital and physical. Through this approach, it can be seen that how designing with people in behavior change can be applied to social and environmental problems, as well as commercially. It has a total of 101 cards across eight different lenses, such as architectural, error-proofing, interaction, ludic, perceptual, cognitive, Machiavellian, and security lens each having its own distinct characteristics of extracting ideas from the participant of this approach. For this research purpose, a three-legged accident blackspot intersection of a national highway has been chosen to perform the DWI workshop. Participants from varying fields such as civil engineering, naval architecture and marine engineering, urban and regional planning, and sociology actively participated for a day long workshop. While going through the workshops, the participants were given a preamble of the accident scenario and a brief overview of DWI approach. Design cards of varying lenses were distributed among 10 participants and given an hour and a half for brainstorming and generating ideas to improve the safety of the selected intersection. After the brainstorming session, the participants spontaneously went through roundtable discussions regarding the ideas they have come up with. According to consensus of the forum, ideas were accepted or rejected. These generated ideas were then synthesized and agglomerated to bring about an improvement scheme for the intersection selected in our study. To summarize the improvement ideas from DWI approach, color coding of traffic lanes for separate vehicles, channelizing the existing bare intersection, providing advance warning traffic signs, cautionary signs and educational signs motivating road users to drive safe, using textured surfaces at approach with rumble strips before the approach of intersection were the most significant one. The motive of this approach is to bring about new ideas from the road users and not just depend on traditional schemes to increase the efficiency, safety of roads as well and to ensure the compliance of road users since these features are being generated from the minds of users themselves.

**Keywords :** design with intent, road safety, human experience, behavior

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