Title:	Design and Development of Air Cooled 100 Watt Blue Diode Laser
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Abstract:	Laser is one of the most important discovery in 20th century. It has evolved since its start off in both improve performance and tremendously increased in variety. It has got wide range of applications in medical science, fundamental research, time keeping and appli- cations in industries to name a few. High power lasers are inevitable in current industrial applications like welding, cutting, marking etc. Before blue LEDs were discovered by Shuji Nakamura (2014 Nobel Laurette) in 1990, infrared lasers were used for industrial purposes which required complex cooling and sophisticated setups.Ever since, blue diode laser tech- nology is evolving. Despite various constraints to build a low cost high power laser of 100 Watt scale, we take the challenge of building a prototype of the same utilizing this blue laser diode. In this MS thesis we demonstrate the complete journey of how we started from scratch, working with blue laser pointer to reach the well developed 100 Watt blue diode laser. Heat management, focusing multiple beams to a tight spot, compact setup design and voltage spikes in electrical instruments are the major challenges in the development of high power laser. We demonstrate, by our design, a set of different cooling mechanisms and power supplies to overcome them and thereby increasing the performance of laser. We have already made ≈100 Watt power laser and trying to push this limit further.
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