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The above candidate has carried out research for the Masters thesis Dissertation under my supervision.

Signature of the supervisor:

Date

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Abstract

This study explores the possibility of adopting LED lighting for professional sports lighting projects over the conventional technology. LED lighting has the advantage of lower power consumption and longer lifetime, however being a new technology LED luminaires are very expensive than conventional luminaires. Therefore in some cases it is debatable whether LED lighting is a feasible solution. Sports lighting is an area in lighting where there are very particular requirement in illumination level, uniformity, glare and colour rendering. Therefore LED luminaires specialized for sports lighting are very limited in the market. In this study, LED and conventional lighting designs are done for various sports applications and the two systems are compared. Economic analysis is done in terms of simple payback and IRR to check whether LED lighting is feasible for sports lighting in current scenario. Also various factors affecting to the feasibility of LED lighting for sports lighting is identified and sensitivity analysis is done to identify under which conditions LED lighting become advantageous over conventional lighting technology for sports lighting. In addition qualitative analysis is also done of sports luminaires of both LED and metal halide technology.

Keywords: LED lighting, stadium lighting, simple payback, IRR, sensitivity analysis

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LIST OF ABBREVIATIONS

Abbreviation	Description
AC	Alternative Current
CRI	Colour Rendering Index
DC	Direct Current
FIFA	Federation Internationale De Football Association
fps	Frames per second
IRR	Internal Rate of Return
LED	Light Emitting Diode
LKR	Sri Lankan Rupee
MH	Metal Halide
USM	Ultra Slow Motion

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