VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belagavi – 590 010

PROJECT REPORT
ON

"MIXED NOISE REMOVAL IN IMAGES BY WESNR"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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CERTIFICATE

Certified that the project work entitled **"MIXED NOISE REMOVAL IN IMAGES BY WESNR"** *is a bonafide work carried out by*

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in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2015–2016. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

26/05/2016

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ABSTRACT

Mixed noise removal from natural images is a challenging task since noise distribution usually does not have a parametric model and has a heavy tail. One typical kind of mixed noise is Additive White Gaussian Noise (AWGN) coupled with Impulse Noise (IN). Many mixed noise removal methods are detection based methods they first detect the locations of impulse noise pixels and then remove the mixed noise. However, such methods tend to generate many artifacts when the mixed noise is strong. The project uses a simple yet effective method, namely Weighted Encoding with Sparse Nonlocal Regularization (WESNR), for mixed noise removal. In WESNR, there is no explicit step of impulse pixel detection: instead, soft impulse pixel detection via weighted encoding is used to deal with IN and AWGN simultaneously. Meanwhile, the image sparsity and nonlocal self similarity prior are integrated into a regularization term and introduce into the variational encoding frame work.