LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Artikel	:	Timber as a Pavement Construction Material: Design and Application		
Jumlah Penulis	:	3 Orang (Dina Pasa Lolo*, Sri Prabandiyani Retno Wardani, **Bagus Hario Setiadji**)		
Status Pengusul	:	Penulis ke-3		
Identitas Prosiding	:	a. Judul Prosiding	:	Journal of Physics: Conference Series Vol. 1845 (2021), International Conference on Industrial Automation, Smart Grid and its Application, ICIASGA 2020
		b. ISBN/ISSN	:	1742-6588
		c. Thn Terbit, Tempat Pelaks.	:	2021, Jawa Timur, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1742-6596/1845/1/012073
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1742-6596/1845/1/012073/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Prosiding (beri ✓pada kategori yang tepat) :
[√] Prosiding Forum Ilmiah Internasional
[ ] Prosiding Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3.00	3.00	3.00
b. Ruang lingkup dan kedalaman pembahasan (30%)	7.00	8.00	7.50
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9.00	8.00	8.50
d. Kelengkapan unsur dan kualitas terbitan/prosiding (30%)	9.00	8.50	8.75
Total = (100%)	**28.00**	**27.50**	**27.75**
Nilai Pengusul = (40% x 27.75)/2 = 5.55			

Semarang, Desember 2021

Reviewer 1

Prof. Dr. Ir. Han Ay Lie, M. Eng.
NIP. 195611091985032002
Unit Kerja: Departemen Teknik Sipil FT UNDIP

Reviewer 2

Prof. Ir. Mochamad Teguh, MSCE, Ph.D
NIP. 195808051987031001
Unit Kerja: Prodi Teknik Sipil, Universitas Islam Indonesia

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		b.	ISBN/ISSN	: 1742-6588
		c.	Thn Terbit, Tempat Pelaks.	: 2021, Jawa Timur, Indonesia
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3.00		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9.00		7
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9.00		9
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9.00		9
Total = (100%)	**30.00**		**28**
Nilai Pengusul = (0.4 x 28)/2 = 5.6			

Catatan Penilaian artikel oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi prosiding:**
   Prosiding cukup lengkap, memiliki cover, preface, conference committee dan table of content. Topik dari konferensi sangat umum, yaitu mencakup bidang *applied science*, *technology* and *engineering*. Berdasarkan topik konferensi ini, isi dari artikel adalah sangat relevan.
2. **Ruang lingkup dan kedalaman pembahasan:**
   Penulis tidak menyebutkan alasan di dalam artikel mengapa kayu tidak digunakan sebagai penggant lapisan base, tapi lapisan subbase. Pembahasan tidak terlalu banyak, artikel hanya menyajikan cara pembuatan rakit kayu dalam konstruki perkerasan lentur, sedangkan hasil pengujian material maupun struktur perkerasan belum ditampilkan.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Penelitian ini memberikan informasi mengenai penggunaan material local sebagai material jalan. Hanya saja, artikel ini kurang didukung oleh daata karena penelitian ini belum sampai tahap pengumpulan data. Penjelasan mengenai pembuatan rakit kayu sebagai lapis pondasi cukup detil dilengkapi dengan gambar-gambar.
4. **Kelengkapan unsur dan kualitas terbitan:**
   Artikel diterbitkan pada Journal of Physics: Conference Series, yang terindeks Scopus dari tahun 2005 – 2021. Prosiding ini memiliki CiteScore 2020 = 0,7 dan SJR 2020 = 0,210. Artikel dipresentasikan pada konferensi internasional ICIASGA 2020, dimana konferensi ini memiliki scientific committee hanya dari Indonesia, dihadiri keynote speaker dari 4 negara, dan peserta dari 11 negara.

Semarang, Desember 2021
Reviewer 1

Prof. Dr. Ir. Han Ay Lie, M. Eng.
NIP. 19561091985032002
Unit Kerja: Departemen Teknik Sipil FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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Identitas Prosiding	:	a.	Judul Prosiding	: Journal of Physics: Conference Series Vol. 1845 (2021) International Conference on Industrial Automation, Smart Grid and its Application, ICIASGA 2020
		b.	ISBN/ISSN	: 17426588
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		d.	Penerbit/Organiser	: titute of Physics Publishing
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3.00		3,0
b. Ruang lingkup dan kedalaman pembahasan (30%)	9.00		8,0
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9.00		8,0
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9.00		8,5
Total = (100%)	**30.00**		27,5
Nilai Pengusul = 40%/2 x 27,5 = 5,5			

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2. **Ruang lingkup dan kedalaman pembahasan:**
   Lingkup penelitian material konstruksi cukup baik. Pembahasan tentang aplikasi lemang memadahi
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Metodologi dijelaskan secara singkat, dan kecukupan data baik
4. **Kelengkapan unsur dan kualitas terbitan:**
   Terpercaya dan kualitas terbitan baik

Yogyakarta, Oktober 2021
Reviewer 2

Prof. Ir. Mochamad Teguh, MSCE, Ph.D
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Document type
Conference Paper • *Bronze Open Access*

Source type
Conference Proceedings

ISSN
17426588

DOI
10.1088/1742-6596/1845/1/012073

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Journal of Physics: Conference Series • *Open Access* • Volume 1845, Issue 1 • 23 March 2021 • Article number 012073 • 1st International Conference on Industrial Automation, Smart Grid and its Application, ICIASGA 2020 • Jawa Timur • 4 November 2020 through 5 November 2020 • Code 168067

Timber as a Pavement Construction Material: Design and Application

Lolo D.P.[a, b] , Wardani S.P.R.[c], Setiadji B.H.[c]

Save all to author list

[a] PhD Candidate Department of Civil Engineering, Diponegoro University, Semarang, Indonesia
[b] Department of Civil Engineering, Musamus University, Merauke, Indonesia
[c] Department of Civil Engineering, Diponegoro University, Semarang, Indonesia

Abstract

Roads are one of the most important infrastructure to increase economic growth, accelerate the flow of goods and communication between regions. Therefore, in building road infrastructure it is necessary to pay attention to using materials which appropriate the specifications. Limited pavement materials in an area or region is one of the problems faced by government. It is causes that very important to looking for replacement material that can be used to overcome the problem of material limitations. This study use Bus timber as a substitute material for aggregate in subbase course. It is considerate that Bus timber is often used in timber bridge construction. Bus timber will be made as a raft foundation. At the end of this study, the expected result is that bus timber can be used as pavement material especially for subbase course. © Published under licence by IOP Publishing Ltd.

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Source details

Journal of Physics: Conference Series

Scopus coverage years: from 2005 to Present

Publisher: Institute of Physics Publishing

ISSN: 1742-6588 E-ISSN: 1742-6596

Subject area: Physics and Astronomy: General Physics and Astronomy

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About 1st ICIASGA 2020

The International Conference on Industrial Automation, Smart Grid and its Application (ICIASGA) 2020 provide a premier interdisciplinary platform for researchers, educators, academicians, professionals, industry researchers, students, and practitioners from various engineering backgrounds to present and discuss the most recent development, innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of applied science, technology, and engineering.

ICIASGA is an annual conference organized by State Polytechnic of Madiun and in 2020 this conference will be co-hosted by Aviation Polytechnic of Surabaya and Polytechnic of Jambi. ICIASGA 2020 has picked the theme of "Green Technology & Energy 5.0."

As we may aware, the World Health Organization officially declared the novel coronavirus COVID-19 a pandemic. Governments around the world are now issuing restrictions on travel, gatherings, and meetings to limit and slow the spread of the virus. The health and safety of the author and researcher community is our priority and we are supporting these efforts. Therefore, the ICIASGA conference will be held virtually on 4-5 October 2020 from Politeknik Negeri Madiun Conference Center. All accepted and presented papers will be published in the IOP conference series indexed by Scopus.

The selected Paper will be published in one of the journals indexed by SCOPUS as follows :

- International Journal of Engineering and Advanced Technology
- International Journal of Innovative Technology and Exploring Engineering
- International Journal of Recent Technology and Engineering
- Informatics in Medicine Unlocked, Elsevier Journal (Q3, SJR = 0.224)

In addition, there will be only 30 selected Presented Papers that will be published in Scopus Journal.

Manuscripts Publication & Indexing

Proceeding and Journal Indexing

1ST International Conference on Industrial Automation, Smart Grid and its Application (ICIASGA 2020)

We are glad to introduce you the proceedings of the first International Conference on Industrial Automation, Smart Grid and its Application (ICIASGA 2020). The 1st ICIASGA 2020 addresses challenges and innovations in industry 5.0 era in the field of applied science, technology, and engineering. The conference is enriched with renowned keynote speakers who discuss in the central theme of "Green Technology & Energy 5.0". It also provides a premier interdisciplinary platform for researchers, educators and practitioners to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of of applied science, technology, and engineering.

As we may aware, the World Health Organization officially declared the novel coronavirus COVID-19 a pandemic. Governments around the world are now issuing restrictions on travel, gatherings, and meetings in an effort to limit and slow the spread of the virus. The health and safety of the author and reseacher community is our first priority and we are supporting these efforts. Therefore, the ICIASGA conference was held virtually on 4-5 October 2020.

The ICIASGA conference is hosted by State Polytechnic of Madiun and co-hosted by Aviation Polytechnic of Surabaya and Polytechnic of Jambi. This year, we held this flexible online conference to gather experts and scholars around the globe with the aim to continue disseminating the latest advanced research in the field of Industrial Automation, Smart Grid and Industrial Automations. The conference was held from Conference Center at Politeknik Negeri Madiun as the host of the event. The ICIASGA 2020 event is virtually implemented with a model that all invited speakers are given time to present their material for about 30 minutes each. It then followed by a question and answer by the participants with a direct questioning system, through chat forums and Q&A forums provided by the zoom application. Overall, the conference took 6 hours.

The number of participants who joined the zoom room was recorded around 210 participants. 103 participants attended the conference via the zoom application and 107 participants via YouTube Channel. The authors or participants are came from 11 countries, namely Indonesia, Malaysia, Brunei Darussalam, Australia, Mexico, Polland, Japan, Taiwan, USA, Iraq, China. Indonesian Participants are come from 12 Provinces of 33 Provinces.

The committee of the conference are honored to have invited following renowned experts as our keynote speakers. Prof. Akhtar Kalam from Victoria University, Australia; Wahyu Caesarendra, PhD from Universiti Brunei Darussalam; Dr. Hasliza A Rahim from Universiti Malaysia Perlis; Assoc Prof. Dr. Melor Md Yunus from National University of Malaysia; Lt Kdr Dr. Abu Yazid bin Abu Bakar TLDM from National University of Malaysia and Deni Ridwan, Ph.D from Ministry of Finance of the Republic of Indonesia.

We are glad to share with you that around 160 pre-registered authors are submitted their work in the conferences. However, its about 80 papers are selected and accepted for the conferences. All the papers have been through rigorous review by a panel of reviewers who provide critical comments and corrections, and have contributed subtantially to the improvement of the quality of the papers to meet the requirements of International publication standard.

We would like to express our sincere gratitude to the Chairman, the distinguished keynote speakers, as well as all the participants. We also want to thank the publisher for publishing the proceedings. May the readers could enjoy the gain some valuable knowledge from it. We are expecting more and more experts and scholars from all over the world to join this international event next year.

Chair of the Organizing Committee

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Deni Ridwan, SE, Ak, CA, MBIT, Ph.D

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2021

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Accepted papers received: 26 February 2021
Published online: 23 March 2021

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Dina Pasa Lolo, Sri Prabandiyani Retno Wardani and Bagus Hario Setiadji

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Optimization of Magnetic Coil Construction Using Genetic Algorithm Method

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Abstract. In this article, we discuss coil construction that has the right combination of the number of layers and the number of turns per layer. This combination produces a large electromagnetic force with a physical form that is not too large. A magnetic coil can be used as an electromagnetic ejection. The modification of coil construction is done by using the genetic algorithm method. Experiments were carried out using a population of 100 chromosomes and encoded in 8 bits. Then the resulting programming results are calibrated using the FEMM application to obtain a magnetic force profile. The simulation is carried out with a coil forming wire using the #AWG 10 standard which has a length of 3 meter. The results showed that the optimal force was achieved with a coil construction that had 27 layers (nL) and each layer had 38 turns (T_{PL}).

1. Introduction

Electromagnet coil is a type of magnet which consists of a wire wrapped into a coil which is energized by an electric current[1][2]. The current through the wire produces a magnetic field that is concentrated in the center hole of the coil[3][4][5][6]. The magnetic field disappears when the current is turned off. The amount of field depends on the combination of the number of layers, the number of turns per layer on the coil, and the current that is injected into the coil[7][8][9].

The magnetic field of a coil has characteristics that produce a magnetic force profile. The force along the coil is influenced by the magnitude of the magnetic field and the length of the current injected into the coil. To get the magnetic field as needed, a coil construction design is needed[10]. The optimization of coil construction can use several methods, including using genetic algorithm methods[11][12][13][14][15]. This method is used to determine the number of layers and the number of coil turns to obtain the optimal magnetic field and force on an electromagnet coil.

2. Research Method

The wire used as an experiment to form an electromagnet coil has a maximum length of 2 meters with the standard #AWG 10. Coil construction is a coil of wire that has a certain number of layers and a certain number of turns per layer. The electromagnetic force is the force generated by the coil when an electric current is applied. The design of input and output from the Genetic Algorithm program is shown in the block diagram in Figure 1.

Naive Bayes Algorithm Implementation Based on Particle Swarm Optimization in Analyzing the Defect Product

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Abstract. In the era of progressively more competitive industrial competition, especially in the manufacturing world, it is always required to develop the quality or quality of products and productivity. Each company is compete to win market share. One of the strategies carried out by the company is improving the quality of products and the production process conducted by the company. In the industrial world, product quality and productivity are the keys for success of the production process. Therefore, the purpose of this study is to analyze data for defective products at PT Mane Indonesia with the Particle Swarm Optimization (PSO) and Naïve Bayes Classifier method. The accuracy results using the Naïve Bayes algorithm get a value of 84.38% and an AUC value of 0.953. The results of the PSO-based Naïve Bayes algorithm get a value of 88.62% and AUC value of 0.945. Based on the research which has been performed by using Naïve Bayes based on PSO,it developed a contribution rate of 5,02% in predicting the defected products.

Keywords: Defect Product, Data Mining, Naive Bayes, PSO

1. Introduction

In the era of progressively more competitive industrial competition, especially in the manufacturing world, it is always required to develop the quality or the quality of products and productivity. Each company is compete to win market share. One of the strategies carried out by the company is to improve the quality or the quality of products and the production process carried out by the company. In the industrial world quality or product quality and productivity are the keys for success of the production process.

In manufacturing companies, production activities are very important. If the production activities produce many defective products, it will cause losses in the form of additional time, costs, and raw materials for repairing the defective products. That is why quality control is needed so that the company can produce products according to predetermined quality standards. Basically, the quality of a product illustrates the extent of the ability of a product to display its ability to carry out the functions it has. The advantages of a product are measured through the level of customer satisfaction, so it is also necessary to analyze data and computer-based information. Data and information are needed by a large, medium and small scale company.

The object of this research is PT. Mane Indonesia. This French manufacturing company engaged in the manufacturing of aromatics (flavor and fragrance) for food flavorings and fragrances is operating in the MM2100 Cibitung area. The company produces tens to hundreds of products every day, assisted by

Static Analysis of Railway Axle using Finite Element Method and Monitoring of Railway Bearing Based on Vibration Analysis

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Abstract. Railway axle and railway bearing are critical railway components. It is needed a method to analyse them. In this work, static and dynamic analysis are presented. Static analysis is presented by analyzing the design of railway axle through finite element analysis (FEA). Dynamic analysis is presented by analysing the outer race fault of the railway axle bearing based on vibration analyses. Initially, a laboratory-scale of wheel-set test-rig was designed using 3D computer design, then, the design was analysed the shear stress and deformation by FEA. Based on this design, the laboratory wheel-set test-rig was manufactured for conducting dynamic experimental tests. The vibration responses obtained in the tests were then analysed using fast Fourier transform (FFT) and Hilbert-Huang transforms (HHT). The results show that the stress and the deformation are small enough. Therefore, the design can be applied. In the vibration analysis, EMD process provided good results for analysing signals.

1. Introduction

Railway-axles is one of the critical components in train car. They holds the car body's weight and should transmit it to the wheels [1]. Besides, railway axles are related to passenger's safety during the trip. The railway-axle is always supported by some bearings. Therefore, railway axles and supported bearing are important in this case.

In some researchers, we can found investigations and experiments using different methods. Regularly checked of railway-axle by inspection of magnetic particle and ultrasonic testing were often provided. Besides, railway bearings are often monitored through vibration analyses. Vibration signal measured through real phenomena, such as vibration measuring of railway, is really nonlinear and non-stationary caused by many factors; machine elements which compose in a structure, rail lines track, and dynamic load. Therefore, it is needed an appropriate signal processing for feature extraction to get important information. Hilbert-Huang transform (HHT) is one of the advanced signal processing which accommodates the nonlinear and non-stationary nature [3] and it has been employed to monitor the mechanical systems. The authors utilized HHT to monitor milling states [4]–[6]. In this work, they used HHT for analysing the acceleration and strain signals to monitor milling states in order to chatter and bumping avoidance. They also utilized the HHT to analyse transient signals for monitoring chatter

The Effect of Noise onto HHT Features for Face Milling Cutter Condition Monitoring

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Abstract. In face milling process of train wheel, cutter is one of the most important part and this part should be monitored from failure phenomena for improving final products of train wheel during machining process. One of the best ways for face milling tool condition monitoring is by analyzing signal. However, noise usually contaminates the measured signals during measurement using any sensors. This study presents the effect of noise on the Hilbert-Huang transform features for face milling condition monitoring by mean analyzing the synthetic vibration signals. First, noisy synthetic signals were created, then separates them by Empirical Mode Decomposition (EMD) to be intrinsic mode decompositions (IMFs). Second, the Hilbert-Huang spectra were generated and then compared to HHT baseline spectrum. The result showed that the noise disturbed the HHT spectrum. Without filtering signal, the face milling cutter condition phenomenon was difficult to be revealed by HHT.

1. Introduction

Face milling cutter is one of the most critical segment during the milling process of train wheel. A face milling cutter wear can lead to poor final result of train wheel and accelerate damage of the milling machine. Therefore face milling cutter condition monitoring is one of the important task in manufacturing process.

In cutting tool condition monitoring for any machining process can be divided into two fundamental methods. First is direct method. This approach is including the use of optical and vision, which has the benefit for capturing the actual geometric changes of face milling cutter during milling process. Unfortunately, this method is difficult to be applied in real machining process. The reason is the presence of continuous contact between milling cutter and the workpiece. When a large number of cutting fluids are used during machining, this method is almost impossible [1]. Second is indirect method. In this method, a signal is measured during machining and then processed using any signal processing technique. The strain signals [2], vibrations [3], cutting forces [4], and acoustic emissions [5] are common signals which measured during machining in order to monitor face milling cutter condition. Besides, for analyzing those kind of signals, fast Fourier transform (FFT) [6], [7] is

Timber as a Pavement Construction Material: Design and Application

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Abstract. Roads are one of the most important infrastructure to increase economic growth, accelerate the flow of goods and communication between regions. Therefore, in building road infrastructure it is necessary to pay attention to using materials which appropriate the specifications. Limited pavement materials in an area or region is one of the problems faced by government. It is causes that very important to looking for replacement material that can be used to overcome the problem of material limitations. This study use Bus timber as a substitute material for aggregate in subbase course. It is considerate that Bus timber is often used in timber bridge construction. Bus timber will be made as a raft foundation. At the end of this study, the expected result is that bus timber can be used as pavement material especially for subbase course.

1. Introduction

The development of transportation infrastructure, especially roads, is an important part of national development. Because the availability of road infrastructure can significantly increase productivity and economic growth, absorb labor and create new jobs so that it can help reduce poverty. In addition, access to remote areas can be reach so it can provide opportunities for local communities to the business world. However, road infrastructure development cannot be separated from various challenges, such as geographical conditions and climate change, as well as material limitations [1]. The existence of extreme climate change greatly affects the conditions of the pavement. Each region has a different rainfall. High rainfall that falls on the pavement can damage the pavement layer and make short the pavement service life. Delays in handling road damage can causes high maintenance costs and investment costs.

The construction of new roads especially flexible pavement, takes a large amount of both asphalt and aggregate materials. However, the limited material for road pavement, in this case the aggregate, becomes a separate problem because of the material must be imported from other places or outside the region, thus resulting in expensive material costs [2]. Moreover, the price of concrete work is very expensive [3]. Several studies that using geosynthetics as a road pavement material have been carried out. Many experimental have been performed to evaluate the benefits of using geosynthetics. Using geogrids can extend the service life of pavement [4]–[7]. It is also can reduce permanent deformation [6], [8]–[12], and reduce the thickness of base course [13], [14], and also geogrid can decrease the rutting [15]–[17]. However, these materials are fabricated and expensive material. So it is necessary to