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	Paper Title:	Review on Designing of Multi Bit Flip-Flop to Achieve Reduced Area in VLSI Design	
	<p><b>Abstract:</b> In this paper, we have designed Multi-bit Flip-flop (MBFF) and made performance comparison over the Single-bit Flip-flop (SBFF) We can increase Flip flop performance by merging clock pulse. But increase in clock pulse means it will increases the area. So the Multi-bit Flip-flop is designed by single clock pulse and achieves same functionality like two single-bit Flip-flop so it will reduce the area. The basic memory elements of designer considerations are Latch and flip flop. Optimizations in VLSI have been done on three factors: Area, Power and Timing (Speed). Area optimization means reducing the space of logic which occupy on the die. Memory elements play a vital role on Digital World but these elements consumes more area. Thus these elements can be designed using Multi-bit flip flop to reduce area.</p> <p><b>Keywords:</b> Flip-flop, Latch, Clock buffer, Clock network, Gate delay, Single bit flip flop, Multi bit flip flop.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. Wen-Ben Jone and Chen-Liang Fang, Timing Optimization by Gate Resizing and Critical Path Identification, Design Automation Conference, 1993</li><li>2. Zhi-Wei Chen and Jin-Tai Yan, Routability-Driven Flip-Flop Merging Process for Clock Power Reduction, Computer Design (ICCD) IEEE International Conference, 2010</li><li>3. Jin-Tai Yan and Zhi-Wei Chen, Construction of Constrained Multi -Bit Flip -Flops for Clock Power Reduction, Green Circuits and Systems (ICGCS) International Conference, 2010</li><li>4. Chih -Cheng Hsu, Yao-Tsung Chang and Mark Po-Hung Lin, Crosstalk-Aware Power Optimization with Multi-Bit Flip-Flops, 17th Asia and South Pacific Design Automation Conference, 2012</li><li>5. Mark Po-Hung Lin, Chih-Cheng Hsu, and Yao-Tsung Chang, Recent Research in Clock Power Saving with Multi-Bit Flip-Flops, Midwest Symposium on Circuits and Systems Conference IEEE, 2011</li><li>6. Ya-Ting Shyu et. Al., Effective and Efficient Approach for Power Reduction by Using Multi-Bit Flip-Flops, IEEE transactions on very large scale integration systems, 2012</li><li>7. Rostislav Dobkin, Ran Ginosar, and Avionam Kolody, Fast Asynchronous Shift Register for Bit-Serial Communication,12th IEEE international symposium on asynchronous circuits and systems ,2006</li><li>8. LI Xia Yu, JIA Song, LIU LiMin, WANG Yuan and ZHANG Gang Gang , Design of Novel, Semi-transparent flip-flops for high speed and low power application, science china Press and Springer-verlag Berlin Heidelberg ,2012</li><li>9. Vladimir Stojanovic and Vojin G. Oklobdzija ,Comparative Analysis of Master-Slave Latches and Flip-Flops for High-Performance and Low-Power Systems, IEEE journal of solid-state circuits, vol 34,no-4,april 1999</li></ol>		
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2.	Authors:	Seepelli Praveen, Samalla Krishna, Katkuri Laxmi Chaitanya	
	Paper Title:	Single Phase Single-Stage Transformer Less Renewable Energy System for Micro Grid Applications	
	<p><b>Abstract:</b> In low power renewable systems, a single phase grid-connected converter is usually adopted. This paper deals with a single stage transformer less single phase converter for micro grid applications with PV system is proposed. By using this system the maximum power tracing is possible from PV array to the micro grid. The maximum power point tracing is maintained with a logical controller. A proportional controller is used to control the current injected into the grid a single-phase, single-stage current source inverter based photovoltaic system for grid connection. A double-tuned parallel resonant circuit is designed to attenuate harmonics at the inverter dc side. It helps to improve the power quality and system efficiency. A modified carrier based modulation technique for the current source inverter is studied to magnetize the dc-link inductor and to control the switching pattern for the single phase grid-connected CSI. The operation of Single Phase Transformer-less grid connected PV system is verified by the Simulation and experimental results show the effectiveness of the proposed solution.</p> <p><b>Keywords:</b> Distributed power Generation, DC- AC power conversion, current source inverter grid- connected converters, Single - phase systems, current source converters, Maximum power point tracing (MPT).</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. F.-P. Zeng, G.-H. Tan, J.-Z. Wang, and Y.-C. Ji, “Novel single-phase five level voltage-source inverter for the shunt active power filter,” Power Electron., vol. 3, no. 4, pp. 480–489, Jul. 2010.</li><li>2. R. Gonzalez, E. Gubia, J. Lopez, and L. Marroyo, “Transformerless single-phase multilevel-based photovoltaic inverter,” IEEE Trans. Ind. Electron., vol. 55, no. 7, pp. 2694–2702, Jul. 2008.</li><li>3. D. Barater, G. Buticchi, A. S. Crinto, G. Franceschini, and E. Lorenzani, “A new proposal for ground leakage current reduction in transformerless grid-connected converters for photovoltaic plants,” in Proc. 35th IEEEIECON, Nov. 2009, pp. 4531–4536.</li><li>4. G. Buticchi, G. Franceschini, E. Lorenzani, D. Barater, and A. Fratta, “A novel compensation strategy of actual commutations for ground leakage current reduction in PV transformerless converters,” in Proc. 36th IEEE IECON, Nov. 2010, pp. 3179–3184.</li><li>5. Q. Mei, M. Shan, L. Liu, and J. Guerrero, “A novel improved variable step-size incremental-resistance MPPT method for PV systems,” IEEE Trans. Ind. Electron., vol. 58, no. 6, pp. 2427–2434, Jun. 2011.</li><li>6. R. Kadri, J.-P. Gaubert, and G. Champenois, “An improved maximum</li><li>7. Power point tracking for photovoltaic grid-connected inverter based on voltage-oriented control,” IEEE Trans. Ind. Electron., vol. 58, no. 1, pp. 66–75, Jan. 2011.</li><li>8. IEEE Recommended Practices and Requirements for Harmonic Controlin Electrical Power Systems, IEEE Std 519-1992, 1993</li><li>9. D. Infield, P. Onions, A. Simmons, and G. Smith, “Power quality from multiple grid-connected single-phase inverters,” IEEE Trans. Power Del., vol. 19, no. 4, pp. 1983–1989, Oct. 2004.</li><li>10. R. Gonzalez, E. Gubia, J. Lopez, and L. Marroyo, “Transformerless single-phase multilevel-based photovoltaic inverter,” IEEE Trans. Ind.Electron., vol. 55, no. 7, pp. 2694–2702, Jul. 2008.</li></ol>		
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	Authors:	Roberto Carluccio, Alfio Messina	
	Paper Title:	MarCONI - One-Hand Controller for Unmanned Aerial Vehicle	

3.	<p><b>Abstract:</b> Here authors present MarCONI (Multi Channel One haNd Interface), a system born to control remotely piloted aircrafts (RPAs), in particular multi-rotors, by means of new generation peripherals. Among those, used in personal computing environment, a generation of 6 degree-of-freedom (DOF) advanced controllers is the SpaceMouse family by 3Dconnexion. MarCONI is a hardware-software system, acting as a bridge between the USB peripheral and the UAV's radio-controller. A shaping block has been added to the system in order to process raw data flow generated by the SpaceMouse. This step allows the user to adapt the controller feedback to the specific vehicle features and response. Shaping parameters are fully customizable by a specific Web GUI, accessible through a Wi-Fi connection, making possible the setup tuning by means of mobile devices, such as smartphones or laptops. A side benefit of this system is the possibility to pilot UAVs using one hand only, with no restriction.</p> <p><b>Keywords:</b> 3D USB HID, Arduino, Drone, FPV, Multi-rotor, RPA, SpaceMouse, SpaceNavigator, UAV.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. A. Puttock, A. M. Cunliffe, K. Anderson, R. E. Brazier, "Aerial photography collected with a multirotor drone reveals impact of eurasian beaver reintroduction on ecosystem structure", in Journal of Unmanned Vehicle Systems, 2015, doi:10.1139/juvs-2015-0005.</li><li>2. S. Ullman, "The interpretation of structure from motion", in Proc. R. Soc. London, Ser. B 203, 1979, pp. 405-426, doi:10.1098/rspb.1979.0006.</li><li>3. S. Seitz, B. Curless, J. Diebel, D. Scharstein, R. Szeliski, "A comparison and evaluation of multi-view stereo reconstruction algorithms", in Computer Vision and Pattern Recognition, IEEE Computer Society Conference, 2006, pp. 519 - 528. doi:10.1109/CVPR.2006.19.</li><li>4. J. Rudolf, K. Lehmann, K. Z. Smithson, T. Prinz, "Making the invisible visible: Using uas-based high-resolution color-infrared imagery to identify buried medieval monastery walls", in Journal of Unmanned Vehicle Systems, 2014, doi:10.1139/juvs-2014-0017.</li><li>5. N. Ratcliffe, D. Guihen, J. Robst, S. Crofts, A. Stanworth, P. Enderlein, "A protocol for the aerial survey of penguin colonies using uavs", in Journal of Unmanned Vehicle Systems, 2015, doi:10.1139/juvs-2015-0006.</li><li>6. G. Vásárhelyi, C. Virágh, G. Somorjai, N. Tarcai, T. Szörényi, T. Nepusz, T. Vicsek, in "Outdoor flocking and formation flight with autonomous aerial robots", in IEEE IROS Conference, 2014.</li><li>7. D. Habib, H. Jamal, S. A. Khan, "Employing multiple unmanned aerial vehicles for co-operative path planning", in Int J Adv Robot Syst., 2013, doi:10.5772/56286.</li><li>8. C. Zych, A. Wrońska-Zych, J. Dudeczyk, A. Kawalec, "A correction in feedback loop applied to two-axis gimbal stabilization", in Bulletin of the Polish Academy of Sciences Technical Sciences, 2015, doi:10.1515/bpasts-2015-0025.</li><li>9. 3Dconnexion SpaceMouse Family Overview, url: <a href="http://www.3dconnexion.co.uk/products/spacemouse.html">http://www.3dconnexion.co.uk/products/spacemouse.html</a>.</li><li>10. T. A. Group, "The economic payback of 3d mice for cad design engineers", Tech. rep., 2008. url: <a href="http://www.3dconnexion.com/fileadmin/user_upload/manuals_docs/english_intl/3dx_whitepaper_cadpayback_en_intl.pdf">http://www.3dconnexion.com/fileadmin/user_upload/manuals_docs/english_intl/3dx_whitepaper_cadpayback_en_intl.pdf</a></li><li>11. Arduino Yún Product Overview, url: <a href="http://www.arduino.cc/en/Main/ArduinoBoardYun">http://www.arduino.cc/en/Main/ArduinoBoardYun</a>.</li><li>12. jQuery UI - Official Website, url: <a href="https://jqueryui.com/">https://jqueryui.com/</a>.</li><li>13. Arduinorclib - Library for Arduino Based R/C Equipment, url: <a href="http://sourceforge.net/projects/arduinorclib/">http://sourceforge.net/projects/arduinorclib/</a>.</li><li>14. M. Martins, A. Cunha, I. Oliveira, L. Morgado, "Usability test of 3dconnexion 3d mice versus keyboard + mouse in second life undertaken by people with motor disabilities due to medullary lesions", in Universal Access in the Information Society 14, 1, 2015, 5-16. doi:10.1007/s10209-013-0329-9.</li></ol>	8-13				
4.	<table><tr><td><b>Authors:</b></td><td><b>Mohamed Said Albahri</b></td></tr><tr><td><b>Paper Title:</b></td><td><b>ECC Implementation on Wireless Sensor Nodes</b></td></tr></table> <p><b>Abstract:</b> This paper is concerned with the implementation and performance evaluation of Elliptic Curve Cryptography in constrained devices such as wireless sensor nodes. Experimental evaluation for Elliptic Curve Digital Signature (ECDSA) on an 8-bit (Arduino mega2560) and a 32-bit ( Arduino Due) processor using the Relic-toolkit has been carried out and comparative implementation results are given. It is shown that by adopting appropriate optimizations an ECDSA can be achieved in 83ms.</p> <p><b>Keywords:</b> WSN, ECC, Software Implementation, Relic toolkits.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. D. F. A. Gouv and C. P. L., "Relic is an efficient library for cryptography." [Online]. Available: <a href="http://code.google.com/p/relic-toolkit/">http://code.google.com/p/relic-toolkit/</a></li><li>2. "Avrcryptolib," 2014. [Online]. Available: <a href="http://www.emsign.nl/">http://www.emsign.nl/</a></li><li>3. Liu and P. Ning, "Tinyecc: A configurable library for elliptic curve cryptography in wireless sensor networks," in Information Processing in Sensor Networks, 2008. IPSN'08. International Conference on. IEEE, Conference Proceedings, pp. 245–256.</li><li>4. S. C. Seo, H. Dong-Guk, H. C. Kim, and H. Seokhie, "Tinyecc: Ef-ficient elliptic curve cryptography implementation over<math>GF(2^m)</math> on 8-bit micaz mote," IEICE transactions on information and systems, vol. 91, no. 5, pp. 1338–1347, 2008.</li><li>5. N. Koblit, "Elliptic curve cryptosystems," Mathematics of computation, vol. 48, no. 177, pp. 203–209, 1987.</li><li>6. "Sec1 final," 2014. [Online]. Available: <a href="http://www.secg.org/collateral/sec1_final.pdf">http://www.secg.org/collateral/sec1_final.pdf</a></li><li>7. "sec2 final," 2014. [Online]. Available: <a href="http://www.secg.org/collateral/sec2_final.pdf">http://www.secg.org/collateral/sec2_final.pdf</a></li><li>8. M. Sethi, J. Arkko, and A. Keranen, "End-to-end security for sleepy smart object networks," in Local Computer Networks Workshops (LCN Workshops), 2012 IEEE 37th Conference on, Conference Proceedings, pp. 964–972.</li><li>9. T. S. Denis, BigNum Math: Implementing Cryptographic Multiple Pre-cision Arithmetic. Syngress Publishing, 2006.</li><li>10. P. G. Comba, "Exponentiation cryptosystems on the ibm pc," IBM systems journal, vol. 29, no. 4, pp. 526–538, 1990.</li><li>11. J. Großschädl, R. M. Avanzi, E. Savaş, and S. Tillich, Energy-efficient software implementation of long integer modular arithmetic. Springer, 2005, pp. 75–90.</li><li>12. D. Hankerson, J. L. Hernandez, and A. Menezes, "Software implementa-tion of elliptic curve cryptography over binary fields," in Cryptographic Hardware and Embedded Systemsâ ATCHES 2000. Springer, Confer-ence Proceedings, pp. 1–24.</li><li>13. "Arduino - homepage," 2014. [Online]. Available: <a href="http://www.arduino. cc/">http://www.arduino. cc/</a></li></ol>	<b>Authors:</b>	<b>Mohamed Said Albahri</b>	<b>Paper Title:</b>	<b>ECC Implementation on Wireless Sensor Nodes</b>	14-17
<b>Authors:</b>	<b>Mohamed Said Albahri</b>					
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	<table><tr><td><b>Authors:</b></td><td><b>Nan Wang</b></td></tr><tr><td><b>Paper Title:</b></td><td><b>A New Boosting Algorithm Based on Dual Averaging Scheme</b></td></tr></table> <p><b>Abstract:</b> The fields of machine learning and mathematical optimization increasingly intertwined. The special topic on supervised learning and convex optimization examines this interplay. The training part of most supervised learning algorithms can usually be reduced to an optimization problem that minimizes a loss between model predictions and training data. While most optimization techniques focus on accuracy and speed of convergence,</p>	<b>Authors:</b>	<b>Nan Wang</b>	<b>Paper Title:</b>	<b>A New Boosting Algorithm Based on Dual Averaging Scheme</b>	
<b>Authors:</b>	<b>Nan Wang</b>					
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5.	<p>the qualities of good optimization algorithm from the machine learning perspective can be quite different since machine learning is more than fitting the data. Better optimization algorithms that minimize the training loss can possibly give very poor generalization performance. In this paper, we examine a particular kind of machine learning algorithm, boosting, whose training process can be viewed as functional coordinate descent on the exponential loss. We study the relation between optimization techniques and machine learning by implementing a new boosting algorithm. DABOOST, based on dual-averaging scheme and study its generalization performance. We show that DABOOST, although slower in reducing the training error, in general enjoys a better generalization error than AdaBoost.</p> <p><b>Keywords:</b> Machine Learning, Optimization, Boosting, AdaBoost, computational learning theory.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. M. Baes and M. Burgisser. Hedge algorithm and dual averaging schemes. arXiv, 1112(1275), 2011.</li><li>2. LR Bahl, Peter F Brown, Peter V De Souza, and Robert L Mercer. Maximum mutual information estimation of hidden Markov model parameters for speech recognition. In proc. ICASSP, volume 86, pages 49–52, 1986.</li><li>3. Craig Boutilier. A POMDP formulation of preference elicitation problems. In AAAI/IAAI, pages 239–246, 2002.</li><li>4. L. Breiman. Prediction games and acring algorithms. Nueral Computation, 11:1493–1517, 1999.</li><li>5. Tianqi Chen, Hang Li, Qiang Yang, and Yong Yu. General functional matrix factorization using gradient boost- ing. In Proceeding of 30th International Conference on Machine Learning (ICML’13), volume 1, pages 436–444, 2013.</li><li>6. Y. Freund and R. E. Schapire. A decision-theoretic generalization of on-line learning and an application to boosting. Journal of Computer and System Sciences, 55(1):119–139, 1997.</li><li>7. Yoav Freund, Robert Schapire, and N Abe. A short introduction to boosting. Journal-Japanese Society For Artificial Intelligence, 14(771-780):1612, 1999.</li><li>8. Yoav Freund and Robert E Schapire. A decision-theoretic generalization of on-line learning and an application to boosting. Journal of computer and system sciences, 55(1): 119–139, 1997.</li><li>9. A. Grubb and J. A. Bagnell. Generalized boosting algorithms for convex optimization. In Proceedings of the 28th International Conference on Machine Learning, Bellevue, WA, June 2011.</li><li>10. Marti A. Hearst, Susan T Dumais, Edgar Osman, John Platt, and Bernhard Scholkopf. Support vector machines. Intelligent Systems and their Applications, IEEE, 13(4):18–28, 1998.</li><li>11. Y. Huang, A. L. Friesen, T. D. Hanks, M. N. Shadlen, and R. P. N. Rao. How prior probability influences decision making: A unifying probabilistic model. Advances in Neural Information Processing Systems (NIPS), 2012.</li><li>12. Y. Huang and R. P. N. Rao. Reward optimization in primate brain: A POMDP model of decision making under uncertainty. PLoS One, 8(1), 2013.</li><li>13. Yanping Huang and Rajesh P Rao. Neurons as monte carlo samplers: Bayesian inference and learning in spiking networks. In Z. Ghahramani, M. Welling, C. Cortes, N.D. Lawrence, and K.Q. Weinberger, editors, Advances in Neural Information Processing Systems 27, pages 1943–1951. Curran Associates, Inc., 2014.</li><li>14. Yanping Huang and Rajesh PN Rao. Predictive coding. Wiley Interdisciplinary Reviews: Cognitive Science, 2(5): 580–593, 2011.</li><li>15. M. J. Kearns and L. G. Valiant. Learning boolean formulae or finte automata is as hard as factoring. Technical report, Department of Computer Science, Harvard University, 1988.</li><li>16. Esther Levin, Roberto Pieraccini, and Wieland Eckert. Using markov decision process for learning dialogue strategies. In Acoustics, Speech and Signal Processing, 1998. Proceedings of the 1998 IEEE International Conference on, volume 1, pages 201–204. IEEE, 1998.</li><li>17. M. Lichman. UCI machine learning repository, 2013.</li><li>18. L. Mason, J. Baxter, P. Barlett, and M. Frean. Functional gradient techniques for combining hypotheses. In Advances in large margin classifiers. MIT Press, Cambridge, 1999.</li><li>19. Kevin P Murphy. Machine learning: a probabilistic perspective. MIT press, 2012.</li><li>20. Y. Nesterov. Primal-dual subgradient methods for convex problems. Mathematical Programming, 120(1): 221– 259, 2009.</li><li>21. Lawrence R Rabiner and Bing-Hwang Juang. An introduction to hidden markov models. ASSP Magazine, IEEE, 3(1): 4–16, 1986.</li><li>22. Bernhard Scho’lkopf and Alex Smola. Support vector machines. Encyclopedia of Biostatistics, 1998.</li><li>23. Ingo Steinwart and Andreas Christmann. Support vector machines. Springer Science &amp; Business Media, 2008.</li><li>24. L. Xiao. Dual averaging methods for regularized stochastic learning and online optimization. The Journal of machine learning research, 11, 2010.</li></ol>	18-22				
6.	<table><tr><td><b>Authors:</b></td><td><b>H. El-Didamony, S. Abd El-Aleem Mohamed, H. Gouda</b></td></tr><tr><td><b>Paper Title:</b></td><td><b>Durability Performance of Blended Cements Incorporating Egyptian SRC and GBFS in Aggressive Water</b></td></tr></table> <p><b>Abstract:</b> The durability of concrete has been a major concern of civil engineering professionals over the last few decades. Durability is the capacity of concrete to resist deterioration caused by aggressive environments. An experimental investigation was carried out to evaluate the durability properties of blended cements prepared from substitution of SRC with different percentages of GGBFS up to 75 mass, %. The ingredients of each dry mix were homogenized, and then hydrated with the water of standard consistency. The specimens were cured under tap water for 28 days (zero time), then immersed in marine environment up to 12 months. The hydration products were analyzed using DTA, IR and XRD techniques. The durability properties were determined by measuring: free lime, combined water, bulk density, compressive strength, total sulfate and total chloride contents for each mix at different immersing ages. The results revealed that, GGBFS decreases the accessibility of SO42- and Cl- to penetrate into the pore system. Hence the total sulfate and total chloride contents decrease. Therefore, the durability performance of SRC is greatly enhanced by the use of high GGBFS contents. The composite cements containing 45-55 mass, % of GGBFS are comparable to or outperform SRC up to one year of immersion in aggressive water.</p> <p><b>Keywords:</b> Blended Cements; GGBFS; SRC; Durability; Bulk density and Compressive strength.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. Neville A.M. and Aitcin P.C., "High performance concrete" an overview, Mater. Struct. , 31; (1998), pp.111–117.</li><li>2. Mehta P.K., "Advancements in concrete technology", Concr. Int. 96, (4); (1999), pp. 69 –76.</li><li>3. Elahi A., Basheer P.A.M., Nanukuttan S.V. and Khan Q.U.Z., "Mechanical and durability properties of high performance concretes containing supplementary cementitious materials", Construc. Build. Mater. 24; (2010), pp. 292–299.</li><li>4. Ahmed Hadisadok, Said Kenai, Luc Courard, Frédéric Michel, Jamal Khatib "Durability of mortar and concretes containing slag with</li></ol>	<b>Authors:</b>	<b>H. El-Didamony, S. Abd El-Aleem Mohamed, H. Gouda</b>	<b>Paper Title:</b>	<b>Durability Performance of Blended Cements Incorporating Egyptian SRC and GBFS in Aggressive Water</b>	23-35
<b>Authors:</b>	<b>H. El-Didamony, S. Abd El-Aleem Mohamed, H. Gouda</b>					
<b>Paper Title:</b>	<b>Durability Performance of Blended Cements Incorporating Egyptian SRC and GBFS in Aggressive Water</b>					

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	<p><b>Authors:</b> C. Savitha, S. Chandrakaran, T. M. Madhavan Pillai</p> <p><b>Paper Title:</b> Coupled Lateral and Rocking Vibration of Footings with Internal Openings</p>	
7.	<p><b>Abstract:</b> A study on the vibration of square and circular foundation with concentric internal holes is presented in this paper. The foundations are assumed to be rigid and embedded in, isotropic and linear elastic half-space and are subjected to coupled lateral and rocking excitation. This problem is analysed using an approximate method. The results are presented in frequency domain. Effects of embedment, mass ratio, ratio of inner to outer diameter (circular footing) or inner to outer width of the footing (square footing) and backfill are conducted to assess the behaviour. The accuracy and efficiency of the model are assessed on the basis of comparison studies with published literature. The results show that the embedment substantially affects the response in that it reduces the peak amplitudes and increases the corresponding frequencies.</p> <p><b>Keywords:</b> Embedment, Footing, Lateral vibration, Rocking vibration.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. H.L. Wong, and J.E. Luco, "Dynamic response of rigid foundations of arbitrary shape", Earthquake Engineering and Structural Dynamics, Vol. 4,1976, pp. 579-587.</li> <li>2. J.L. Tassoulas, and E. Kausel, "On the dynamic stiffness of circular ring footings on an elastic stratum", International Journal of Numerical and Analytical Methods in Geomechanics, Vol. 8,1984, pp. 411-426.</li> <li>3. A.S. Veletsos, and Y. Tang, "Vertical vibration of ring foundations with mass", Journal of Engineering Mechanics, Vol. 112(10), 1986, pp. 1090-1098.</li> <li>4. A.S. Veletsos, and Y. Tang, "Vertical vibration of ring foundations", Earthquake Engineering and Structural Dynamics, Vol. 15,1987a, pp. 12-21.</li> <li>5. A.S. Veletsos, and Y. Tang, "Rocking vibration of rigid ring foundations", Journal of Geotechnical Engineering, Vol. 113(9), 1987b, pp. 1019-1032.</li> <li>6. J.K. Kim, J.M. Roesset, and J.L. Tassoulas, "Interaction between concentric annular and circular foundations", Journal of Geotechnical Engineering, Vol. 113(6), 1987, pp. 555-567.</li> <li>7. B.L. Karabalis, and C. -F.D. Huang, "Vibrations of square and circular foundations with concentric openings on elastic half- space", Soil Dynamics and Earthquake Engineering, Vol. 25, 2005, pp. 951-965.</li> <li>8. Y.O. Beredugo, and M. Novak, "Coupled horizontal and rocking vibration of embedded footings", Canadian Geotechnical Journal, Vol.9, 1972, pp. 477- 496.</li> </ol>	36-43