Third PhD Progress Seminar Report

titled

MY RPS REPORT TITLE

Submitted

BY

Mr. My Name

(Admission No.: DYYCOXXX)

Supervisor

Dr. Supervisor's Name

(Department of Department Name, NIT – Surat)

December, 2013

Department of Department Name

SARDAR VALLABHBHAI
NATIONAL INSTITUTE OF TECHNOLOGY,
SURAT

TABLE I : Details of the Seminars – Administrative

Sr No	**Type**	**Sequence Number**	**Title of the Seminar**	**Evaluation Committee**			**Date**
				Chairman	**Supervisor**	**Examiner(s)**	
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date
1.	CR	First	Title	Dr. Chairman Name	Dr. Supervisor Name	Dr. Examiner Name	Date

TABLE II : Details of the Seminars – Technical

Sr No	Seminar Details	Research Topics Covered, broadly
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title:

		♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2
1.	First CR	Title: ♣ Point 1 ♣ Point 2

Declaration

I hereby declare that the work being presented in this Progress Seminar Report entitled "My RPS report title" by me i.e. Mr. My Name, bearing Roll No: DYYCOXXX and submitted to the Department Name Department at Sardar Vallabhbhai National Institute of Technology, Surat; is an authentic record of my own work carried out during the ODD semester 2013 – 2014 under the supervision of Dr. Supervisor's Name.

Neither the source code there in, nor the content of the seminar report have been copied or downloaded from any other source. I understand that my result grades would be revoked if later it is found to be so.

I also declare that I have read all the instructions given below.

_____

(My Name)

Instructions:

1. CR = Credit Seminar, RPS = Research Progress Seminar
2. The statement Table I above, must show the details of all of your past seminars till date, including credit seminars and including the current seminar, that this report is about. That means this table must be updated each time you present a seminar.
3. Depending upon the number of your seminar, delete the rows below the one that shows the current seminar details e.g. if this report is about your third credit seminar, delete all the rows below the row serially numbered three above.
4. Obtain the names of persons in your evaluation committee from your supervisor and fill their details correctly here.
5. Please take out three hard copies of this report: One - Department, Two - Supervisor, Three - Your own, unless otherwise stated by the Supervisor OR if you do not wish one, for yourself.
6. Please ensure that the signatures of the members of the entire evaluation committee are taken without fail, after your seminar presentation.
7. IT IS ABSOLUTELY MANDATORY THAT THE HARD COPY OF THIS REPORT IS HANDED OVER TO ALL THE CONCERNED PERSONS IN YOUR EVALUATION COMMITTEE, AT LEAST THREE DAYS BEFORE THE SCHEDULED DATE OF YOUR PRESENTATION.
8. Do not delete these instructions – let them be as it is in the final output, too.

Department of Department Name

SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY,
SURAT

(2013 – 2014)

Approval Sheet

This is to state that the Thesis entitled **My RPS report title** submitted by Mr. My Name (Admission No: DYYCOXXX) is approved for the award of the degree of Doctor of Philosophy in Department Name.

Progress Seminar Evaluation Committee

Supervisor

_____

Examiners

_____

_____

Chairman

_____

Head, Department of Department Name

_____

Date: _____

Place: _____

Acknowledgements

My acknowledgment, vMy acknowledgment, My acknowledgment,

My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, My acknowledgment, vMy acknowledgment, My acknowledgment.

My Name

Publications

[1] N. Surname, "Publication title," *Journal name*, 2013.

[2] N. Surname, "Publication title," *Journal name*, 2013.

[3] N. Surname, "Publication title," *Journal name*, 2013.

[4] N. Surname, "Publication title," *Journal name*, 2013.

[5] N. Surname, "Publication title," *Journal name*, 2013.

[6] N. Surname, "Publication title," *Journal name*, 2013.

[7] N. Surname, "Publication title," *Journal name*, 2013.

[8] N. Surname, "Publication title," *Journal name*, 2013.

[9] N. Surname, "Publication title," *Journal name*, 2013.

[10] N. Surname, "Publication title," *Journal name*, 2013.

[11] N. Surname, "Publication title," *Journal name*, 2013.

[12] N. Surname, "Publication title," *Journal name*, 2013.

[13] N. Surname, "Publication title," *Journal name*, 2013.

Abstract

My abstract, My abstract.

My abstract, vvMy abstract, My abstract.

My abstract, My abstract,

My abstract, My abstract.

Table of Contents

List of Figures

List of Tables

Chapter 1

Introduction & Motivation

Chapter 2

Introduction

Your first chapter. Go on and place some figures as given below.

(a) something here

(b) without border

Figure 2.1: The caption is here. I can refer to the subfigures (a) and (b). In case the subcaption-number i.e. (a) is not to be displayed above, then do not use [ ] in the subfigure command.

I can also refer to the sub-equations using 2.1(a) and 2.1(b) in figure 2.1. Nothing to say about the references. You could refer this way [1, 2].

2.1 First Section

Lets move ahead with tables.

Table 2.1: My first table

Technique	H/W	Distance	Limitations
RSSI	No	Few Meters	Noise, Interference in range
ToA	Yes	Few Cms	Nodes synchronization
TDoA	Ultrasound Txr	Few Meters	Maximum distance of work
AoA	Set of receivers	few degrees	Work on small sensor nodes

I can always refer this table 2.1 using its label. We can include the equations as well. Both environments viz. begin{equation} – end{equation} and begin{eqnarray} – end{eqnarray} are available. I personally prefer the later one. An example is given below in equation 2.1.

$$x(t) = \begin{cases} 0, & \text{if } t < 0, \\ 1, & \text{otherwise.} \end{cases} \tag{2.1}$$

That's all from me. You may explore as much as you want.

Bibliography

[1] E. M. Clarke, "Model cheking," in *Foundations of Software Technology and Theoretical Computer Science (FSTTCS), 17th Conference*, ser. Lecture Notes in Computer Science, vol. 1346. Kharagpur, India: Springer, December 1997, pp. 54–56.

[2] K. Baier, Christel and Joost-Pieter, *Principles of Model Checking (Representation and Mind Series)*. The MIT Press, 2008.

[3] M. Burrows, M. Abadi, and R. Needham, "A logic of authentication," *ACM Trans. Comput. Syst.*, vol. 8, no. 1, pp. 18–36, Feb. 1990.

[4] L. C. Paulson, *Isabelle - A Generic Theorem Prover (with a contribution by T. Nipkow)*, ser. Lecture Notes in Computer Science. Springer, 1994, vol. 828.

[5] E. M. Clarke, "The birth of model checking," in *25 Years of Model Checking*, 2008, pp. 1–26.

[6] C. A. R. Hoare, "An axiomatic basis for computer programming," *Commun. ACM*, vol. 12, no. 10, pp. 576–580, oct 1969.

[7] K. L. McMillan, "The SMV language," Cadence Berkeley Labs, Tech. Rep., March 1999.

[8] A. Cimatti, E. M. Clarke, F. Giunchiglia, and M. Roveri, "Nusmv: A new symbolic model checker," *International Journal on Software Tools for Technology Transfer*, vol. 2, no. 4, pp. 410–425, 2000.

[9] A. Pnueli, "The temporal logic of programs," in *Proceedings of the 18th Annual Symposium on Foundations of Computer Science*, ser. SFCS '77. Washington, DC, USA: IEEE Computer Society, 1977, pp. 46–57.

[10] H. Oldenkamp, "Probabilistic model checking : a comparison of tools," May 2007.

[11] H. Hermanns, J.-P. Katoen, J. Meyer-Kayser, and M. Siegle, "A tool for model-checking markov chains," *STTT*, vol. 4, no. 2, pp. 153–172, 2003.

[12] J.-P. Katoen, M. Khattri, and I. S. Zapreev, "A markov reward model checker," in *Proceedings of the Second International Conference on the Quantitative Evaluation of Systems*, ser. QEST '05. Washington, DC, USA: IEEE Computer Society, 2005, pp. 243–244.

[13] H. L. S. Younes, "YMER: a statistical model checker," in *Proceedings of the 17th international conference on Computer Aided Verification*, ser. CAV'05. Berlin, Heidelberg: Springer-Verlag, 2005, pp. 429–433.

[14] K. Sen, M. Viswanathan, and G. A. Agha, "VESTA: A statistical model-checker and analyzer for probabilistic systems," in *Second International Conference on the Quantitative Evaluaiton of Systems (QEST 2005)*. Torino, Italy: IEEE Computer Society, September 2005, pp. 251–252.

[15] J.-P. Katoen, "Advances in probabilistic model checking," in *Proceedings of the 11th international conference on Verification, Model Checking, and Abstract Interpretation*, ser. VMCAI'10. Springer-Verlag, 2010, pp. 25–25.

[16] A. Hinton, M. Z. Kwiatkowska, G. Norman, and D. Parker, "PRISM: A tool for automatic verification of probabilistic systems," in *Proc. 12th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'06)*, ser. Lecture Notes in Computer Science, vol. 3920. Vienna, Austria: Springer, March 2006, pp. 441–444.

[17] M. Z. Kwiatkowska, G. Norman, and D. Parker, "PRISM: Probabilistic symbolic model checker," in *Proceedings of the 12th International Conference on Computer Performance Evaluation, Modelling Techniques and Tools*, ser. TOOLS '02. London, UK, UK: Springer-Verlag, 2002, pp. 200–204.

[18] M. Kwiatkowska, G. Norman, and D. Parker, "Symmetry reduction for probabilistic

model checking," in *Proceedings of the 18th international conference on Computer Aided Verification*, ser. CAV'06. Springer-Verlag, 2006, pp. 234–248.

[19] C. Appold, "Using state symmetries to speed up symmetry reduction in model checking."

[20] C. Power and A. Miller, "An approach to probabilistic symmetry reduction."

[21] J. Burch, E. Clarke, K. McMillan, D. Dill, and L. Hwang, "Symbolic model checking: 10^{20} states and beyond," *Information and Computation*, vol. 98, no. 2, pp. 142 – 170, 1992.

[22] R. E. Bryant, "Graph-based algorithms for boolean function manipulation," *IEEE Trans. Comput.*, vol. 35, no. 8, pp. 677–691, Aug. 1986.

[23] D. A. Parker, Ph.D. dissertation, University of Birmingham, 2003. [Online]. Available: http://etheses.bham.ac.uk/229/

[24] M. Fujita, P. C. McGeer, and J. C.-Y. Yang, "Multi-terminal binary decision diagrams: An efficient datastructure for matrix representation," *Form. Methods Syst. Des.*, vol. 10, no. 2-3, pp. 149–169, Apr. 1997.

[25] M. Kwiatkowska, G. Norman, and D. Parker, "Probabilistic symbolic model checking with prism: a hybrid approach," *Int. J. Softw. Tools Technol. Transf.*, vol. 6, no. 2, pp. 128–142, Aug. 2004.

[26] H. Hermanns, J. Meyer-Kayser, and M. Siegle, "Multi terminal binary decision diagrams to represent and analyse continuous time markov chains," in *3rd Int. Workshop on the Numerical Solution of Markov Chains, Zaragossa, Spain*, 1999, pp. 188–207.

[27] C. Baier, E. Clarke, V. Hartonas-Garmhausen, M. Kwiatkowska, and M. Ryan, "Symbolic model checking for probabilistic processes," in *Automata, Languages and Programming*, ser. Lecture Notes in Computer Science. Springer Berlin Heidelberg, 1997, vol. 1256, pp. 430–440.

[28] V. Hartonas-Garmhausen, S. Campos, and E. Clarke, "Probverus: Probabilistic symbolic model checking," in *Formal Methods for Real-Time and Probabilistic Systems*,

ser. Lecture Notes in Computer Science. Springer Berlin Heidelberg, 1999, vol. 1601, pp. 96–110.

[29] A. Sistla, "Employing symmetry reductions in model checking," *Computer Languages, Systems & Structures*, vol. 30, no. 3–4, pp. 99 – 137, 2004.

[30] A. Donaldson and A. Miller, "Symmetry reduction techniques for explicit-state model checking," in *First International Symmetry Conference*, 2007, pp. 41–45.

[31] A. Miller, A. Donaldson, and M. Calder, "Symmetry in temporal logic model checking," *ACM Comput. Surv.*, vol. 38, no. 3, Sep. 2006.

[32] T. Wahl and A. Donaldson, "Replication and abstraction: Symmetry in automated formal verification," *Symmetry*, vol. 2, no. 2, pp. 799–847, 2010.

[33] A. Donaldson, "Automatic techniques for detecting and exploiting symmetry in model checking," Ph.D. dissertation, University of Glasgow, June 2007.

[34] J. Rosen, *Symmetry in Science: An Introduction to the General Theory*, ser. Springer study edition. SPRINGER VERLAG GMBH, 1995.

[35] E. Emerson and A. Sistla, "Symmetry and model checking," *Formal Methods in System Design*, vol. 9, no. 1-2, pp. 105–131, 1996.

[36] E. M. Clarke, R. Enders, T. Filkorn, and S. Jha, "Exploiting symmetry in temporal logic model checking," *Form. Methods Syst. Des.*, vol. 9, no. 1-2, pp. 77–104, Aug. 1996.

[37] C. N. Ip and D. L. Dill, "Better verification through symmetry," *Form. Methods Syst. Des.*, vol. 9, no. 1-2, pp. 41–75, Aug. 1996.

[38] S. Barner and O. Grumberg, "Combining symmetry reduction and under-approximation for symbolic model checking," *Form. Methods Syst. Des.*, vol. 27, no. 1-2, pp. 29–66, sep 2005.

[39] E. A. Emerson and T. Wahl, "Dynamic symmetry reduction," in *Proceedings of the 11th international conference on Tools and Algorithms for the Construction and Analysis of Systems*, ser. TACAS'05. Springer-Verlag, 2005, pp. 382–396.

[40] A. Pnueli, J. Xu, and L. D. Zuck, "Liveness with (0, 1, infty)-counter abstraction," in *Proceedings of the 14th International Conference on Computer Aided Verification*, ser. CAV '02. London, UK, UK: Springer-Verlag, 2002, pp. 107–122. [Online]. Available: http://dl.acm.org/citation.cfm?id=647771.734286

[41] E. A. Emerson and R. J. Trefler, "From asymmetry to full symmetry: New techniques for symmetry reduction in model checking," in *Proceedings of the 10th IFIP WG 10.5 Advanced Research Working Conference on Correct Hardware Design and Verification Methods*, ser. CHARME '99, 1999, pp. 142–156.

[42] M. Hendriks, G. Behrmann, K. G. Larsen, P. Niebert, and F. W. Vaandrager, "Adding symmetry reduction to uppaal," in *FORMATS*, 2003, pp. 46–59.

[43] F. Wang and K. Schmidt, "Symmetric symbolic safety-analysis of concurrent software with pointer data structures," in *Proceedings of the 22nd IFIP WG 6.1 International Conference Houston on Formal Techniques for Networked and Distributed Systems*, ser. FORTE '02. Springer-Verlag, 2002, pp. 50–64.

[44] A. P. Sistla, V. Gyuris, and E. A. Emerson, "Smc: a symmetry-based model checker for verification of safety and liveness properties," *ACM Trans. Softw. Eng. Methodol.*, vol. 9, no. 2, pp. 133–166, Apr. 2000.

[45] H. Hansson and B. Jonsson, "A logic for reasoning about time and reliability," *Formal Aspects of Computing*, vol. 6, no. 5, pp. 512–535, 1994.

[46] E. M. Clarke and E. A. Emerson, "Design and synthesis of synchronization skeletons using branching-time temporal logic," in *Logic of Programs, Workshop*. London, UK, UK: Springer-Verlag, 1982, pp. 52–71.

[47] A. Aziz, K. Sanwal, V. Singhal, and R. K. Brayton, "Verifying continuous time markov chains," in *Computer Aided Verification, 8th International Conference, CAV 96, New Brunswick, NJ, USA, July 31 - August 3, 1996, Proceedings*, ser. Lecture Notes in Computer Science, R. Alur and T. A. Henzinger, Eds., vol. 1102. Springer, 1996, pp. 269–276.

[48] R. I. Bahar, E. A. Frohm, C. M. Gaona, G. D. Hachtel, E. Macii, A. Pardo, and F. Somenzi, "Algebraic decision diagrams and their applications," in *Proceedings of the 1993 IEEE/ACM international conference on Computer-aided design*, ser. ICCAD '93. IEEE Computer Society Press, 1993, pp. 188–191.

[49] S.-i. Minato, "Zero-suppressed bdds for set manipulation in combinatorial problems," in *Proceedings of the 30th international Design Automation Conference*, ser. DAC '93. ACM, 1993, pp. 272–277.

[50] M. Kwiatkowska, G. Norman, and D. Parker, "Quantitative analysis with the probabilistic model checker prism," *Electron. Notes Theor. Comput. Sci.*, vol. 153, no. 2, pp. 5–31, May 2006.

[51] F. Somenzi, "Cudd: Cu decision diagram package release 2.5.0." [Online]. Available: http://vlsi.colorado.edu/~fabio/CUDD/

[52] D. Knuth and A. Yao, *Algorithms and Complexity: New Directions and Recent Results*. Academic Press, 1976, ch. The complexity of nonuniform random number generation.

[53] T. Herman, "Probabilistic self-stabilization," *Information Processing Letters*, vol. 35, no. 2, pp. 63–67, 1990.

[54] D. Lehmann and M. Rabin, "On the advantage of free choice: A symmetric and fully distributed solution to the dining philosophers problem (extended abstract)," in *Proc. 8th Annual ACM Symposium on Principles of Programming Languages (POPL'81)*, 1981, pp. 133–138.

[55] L. Lamport, "The mutual exclusion problem: part i - theory of interprocess communication," *J. ACM*, vol. 33, no. 2, pp. 313–326, Apr. 1986.

[56] C. Baier, B. Haverkort, H. Hermanns, and J.-P. Katoen, "Model-checking algorithms for continuous-time markov chains," *IEEE Trans. Softw. Eng.*, vol. 29, no. 6, pp. 524–541, june 2003.

[57] A. Bianco and L. de Alfaro, "Model checking of probabilistic and nondeterministic systems," in *Proc. 15th Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS'95)*, ser. LNCS, P. Thiagarajan, Ed., vol. 1026. Springer, 1995, pp. 499–513.

[58] V. G. Kulkarni, *Modeling and analysis of stochastic systems.* London, UK, UK: Chapman & Hall, Ltd., 1995.

[59] "Prism website." [Online]. Available: http://www.prismmodelchecker.org/

[60] T. Wahl and V. DSilva, "A lazy approach to symmetry reduction," *Form. Asp. Comput.*, vol. 22, no. 6, pp. 713–733, Nov. 2010.

[61] T. Wahl, "Adaptive symmetry reduction," in *Computer Aided Verification*, ser. Lecture Notes in Computer Science. Springer Berlin Heidelberg, 2007, vol. 4590, pp. 393–405.

[62] E. A. Emerson, J. W. Havlicek, and R. J. Trefler, "Virtual symmetry reduction," in *Proceedings of the 15th Annual IEEE Symposium on Logic in Computer Science*, ser. LICS '00. IEEE Computer Society, 2000.

[63] S. A. Kripke, "Semantical considerations on modal logic," *Acta Philosophica Fennica*, vol. 16, no. 1963, pp. 83–94, 1963.