

**APPLICATION OF RADIO FREQUENCY IDENTIFICATION  
FOR SECURING COMPUTER LABORATORY  
INVENTORY**

REPORT

Submitted as a Partial Fulfillment of the Requirements for Getting Bachelor  
Degree of Department of Informatics Engineering in the  
Faculty of Communication and Informatics



Arranged by:

Irwan Prasetyo  
L200102014

DEPARTMENT OF INFORMATICS ENGINEERING  
FACULTY OF COMMUNICATION AND INFORMATICS  
MUHAMMADIYAH UNIVERSITY OF SURAKARTA

2014

## APPROVAL SHEET

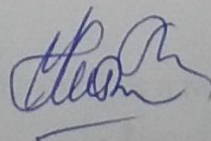
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### APPLICATION OF RADIO FREQUENCY IDENTIFICATION FOR SECURING COMPUTER LABORATORY INVENTORY

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Day : Wednesday  
Date : July 2<sup>nd</sup> 2014

Supervisor



Husni Thamrin, S.T., M.T., Ph.D.

NIK: 706

**RATIFICATION SHEET**

**APPLICATION OF RADIO FREQUENCY IDENTIFICATION  
FOR SECURING COMPUTER LABORATORY  
INVENTORY**

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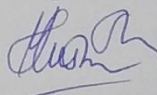
**IRWAN PRASETYO  
L200102014**

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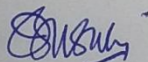
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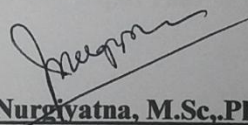
**Husni Thamrin, S.T., M.T., Ph.D.**  
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**Agus Ulinuha, S.T., M.T., Ph.D.**  
NIK. 656

Examiner II

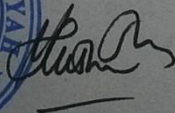


**Nurgiyatna, M.Sc., Ph.D.**  
NIK. 881

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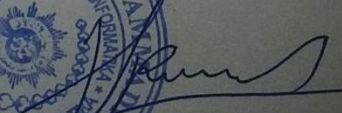
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Dean of  
Faculty of Communication and  
Informatics



**Husni Thamrin, S.T., M.T., Ph.D.**  
NIK. 706

Head of  
Department of Informatics  
Engineering



**Heru Supriyono, S.T., M.Sc., Ph.D.**  
NIK. 970

## **LIST OF CONTRIBUTION**

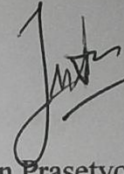
Me as the author and also program developer declares that this research does not use the work of other people that had been proposed before to get their bachelor degree in a university and as long as I know, there is no the work or opinion of other people that had been published, except the written references on this paper and it is mentioned at list of references.

Following is the list of contribution that is declared by the author of the research arrangement:

1. The author analyzes the system of inventory control in computer laboratory of Faculty of Communication and Informatics with directly interview method with Mr. Wuryanto as the laboratory staff.
2. Learn and discuss about RFID technology with Mr. Sapto Hari Wibowo, Mr. Rizky Kurniawan and Mr. Harits Subhan.
3. Designing of information system by myself with many helps of Mr. Husni Thamrin, S.T., M.T., Ph.D. as my supervisor, Mr. Nanang, Mr. Muhammad Dawud, Mr. Wakhid Wicaksono for their opinion and also referring to some books and website that is attached on list of reference.
4. The author creates this system with a laptop, Xampp as the database provider, Netbeans 8.0 as the IDE for the java programming.

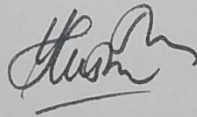
Thus, the declaration or statement and list of contribution is created actually and honestly. The author take the responsible for content and the truth of list above.

Surakarta, July 2014



Irwan Prasetyo

Ascertain,  
Supervisor



Husni Thamrin, S.T., M.T., Ph.D  
NIK. 706

## **MOTTO**

*"If I can do many things, then I can produce many things"*

*"A lot of prayer is nothing without effort and a lot of effort is not useful without  
prayer"*

*"All people in the world must be successful, but the difference is successes that  
has been achieved, success to make trouble for itself or success to make happy for  
itself"*

## **DEDICATION**

1. Alhamdulillahirabbil'alamin, the first word that the author said, because the mercy and blessing from Allah SWT, the author may complete this research.
2. My beloved parent, Mulyadi and Aisyah Mantayanti that always give their prayer to me, also mentally and material support. Thank you very much for your love and anything that you give to me, may Allah always love you too.
3. All my family that always give their supports and advices to me.
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6. All friend of my home stay, all friends of Informatics Engineering class 2010, especially international class. Thank you for your supports.
7. All partners that cannot be mentioned one by one.

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Alhamdulillahirabbil 'alamin, all praise to Allah who has given us the mercy and blessing, also shalawat and salaam to the our Prophet Muhammad SAW and his family, so I completed the research from the beginning until this writing report with title “**APPLICATION OF RADIO FREQUENCY IDENTIFICATION FOR SECURING COMPUTER LABORATORY INVENTORY**”.

This research and report is completed and arranged for getting a bachelor degree of Department of Informatics Engineering, Faculty of Communication and Informatics, Muhammadiyah University of Surakarta. This research and report arrangement does not quit of aid several sides, therefore the author want to say thanks to:

1. Allah SWT who has given us the mercy and blessing until author can complete the research and report arrangement.
2. My beloved parent and family who always give me their prayer, spirit, support and motivation while I do the research and arrange the report.
3. Mr. Husni Thamrin, S.T., M.T., Ph.D. as Dean of Faculty of Communication and Informatics and also as my supervisor for the research or thesis. Thank you for your time, guidance, advice and opinion to me, so that I complete the research.



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5. Mr. Sapta Hari Wibawa S. for his time, guidance and experiences in RFID technology.
6. All friends of Department of Informatics Engineering class 2010 especially international program for your motivation and support.

Finally, the author realizes that this research or thesis and its report is not perfect. Therefore, the author hope to the reader gives the good critics and suggestions. The author hopes this report useful for himself and can increase the knowledge of reader.

*Wassalamu'alaikum. Wr. Wb.*

Surakarta, July 2014

Author

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## **ABSTRACTION**

These days, there are many identifications using RFID (Radio Frequency Identification) technology. One of the RFID applications is inventory control. It can be used for recording and monitoring the inventory usage activity. Data recording and monitoring of the inventory usage in the laboratory of Faculty of Communication and Informatics still use the conventional system, which is recorded in a file or book manually, unavailability of direct detection when the inventory is taken in and out by the student, and also there is no inventory rental transaction recording. This system provides a solution that solves the problem using RFID technology.

The purpose of the research is to improve the effectiveness and efficiency of monitoring and managing the inventory data and recording data of inventory rental transaction. This research uses some methods such as directly interview with laboratory staff, read the literature and get requirement analysis that help researcher to create the inventory management application program.

This inventory control uses RFID as an object detector. The object to be identified is laboratory inventory such as a set of computer, access point and router. A tag is embedded inside each item as the identification number of item and it needs to be registered to database. A Subscriber is a student that wants to borrow the laboratory inventory and it must be registered. Rental transaction is an activity in which a subscriber may borrows the inventory that available in the computer laboratory.

The results of this research is desktop application that help staff of laboratory to record the data of inventory and students as a subscriber, securing and monitoring the activity of inventory usage and record history of inventory rental transaction, and also provides the accurate data from inventory, subscriber and rental transaction.

**Keyword:** Inventory control, application of RFID.