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A MONITORING SYSTEM FOR NEWBORN BABIES IN

UGANDAN HOSPITALS

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DECLARATION

I **Ssonko Julius** do hereby declare that this project report is my original work except for the citations made and has not been submitted for any other degree award to any university or higher institution of learning before

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APPROVAL

This is to certify that this project report entitled “A MONITORING SYSTEM FOR NEWBORN BABIES IN UGANDAN HOSPITALS” has been under my supervision and is submitted to the board of examiners with my approval.

Signature Date

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ACKNOWLEDGEMENT

I thank the almighty God first of all who has made it possible for me to complete this project and helped me go through all this time of the project development.

I appreciate my dear mother for the support she has always given to me in my education. I also express my appreciation to my supervisor Mr. Odongtoo Godfrey and the lecturers who have been there for me during this period of the project development.

Lastly, I appreciate all my fellow students who have always stood with me as advisors in tough times.

DEDICATION

I dedicate this report to my beloved mother Ms. Nakafeero Christine and my entire family who have worked tirelessly towards my education. May God bless you abundantly. I also dedicate it to my all-time teachers and lecturers.

LIST OF ACRONYMS

ID	Identity
RFID	Radio frequency identification
Web App	Website Application
IDE	Integrated Development Environment
UI	user interface
RF	Radio Frequency
EMR	Electronic Medical Records
IC	Integrated circuit
I/O	input-output
PWM	pulse width modulation
ICSP	in-circuit serial programming
USB	Universal serial bus
AC	alternating current
DC	direct current
FTDI	future technology devices international

ABSTRACT

The baby monitoring system is an embedded system based on a web application that is to help health personnel to monitor all baby infants born and kept in nurseries in hospitals.

It consists of 2 RFID modules, a database, a web app, the alert system and the door lock mechanism. One of the RFID module is to be installed which helps in monitoring all the newborns placed therein and it is to alarm if a baby's tag is not read within a particular time interval. The second RFID module is to be installed at the exit/ entrance so as to permit access to the personnel who want to visit the nursery using the door lock mechanism. The database is to store all the records of the babies in the nursery.

The RFID reader installed in the room takes readings every 5 seconds and once a tag hasn't been read, then a buzzer is sounded and it is displayed on the web that a specific baby is missing. For the reader installed at the entrance/ exit; once it reads an approaching tag that isn't authorized, it doesn't open the door. But for an authorized personnel, entrance or exit is granted.

The problem is that sometimes the nurses are so tied up to keep their focus on the newborns thus cases have been registered of baby theft and swap.

Therefore, this system is seen to be significant in saving the time of the health persons whereas at the same time being fundamental in monitoring babies thus avoiding theft cases in hospitals.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Child birth is one of the major events in almost every family around the world that brings anticipation and excitement to the parents and shows their worthiness in society. It is a task that ends the pregnancy which involves an expectant mother carrying a baby in her womb for nine months and comes along with delivering one or more babies.

Mothers pass through a lot of pain when delivering babies, so when a baby dies after being born or is stolen or swapped with a dead one or another one, it becomes a big plunge from the expected celebration to hurtful mourning and a haunting pain[1].

Women mainly deliver in two ways either normally or by the caesarean section in hospitals; very few giving birth at their homes for example 1 out of 50 born children[2]. The number of ladies giving birth by the caesarean section is increasing due to the fact that they say they can't endure the pain that's always much and also the fear that their flesh tear their perineum during the process[3]. It is also increasing because it is elective in some countries and it goes above 15% whereby 1/3 of the deliveries are done on C-section. When they deliver the normal way; where the baby is born normally with no assistance by use of incisions[4], the baby may be left with the mother all the time and all the tests maybe done in her presence unless the problem is too urgent that it may be taken away from its mother.

But when the baby is delivered using the caesarean section; where the mother is given assistance from the medical team and delivers under incisions through the lower abdomen through which the baby is delivered due to many factors like; a big baby, failure of labor to progress, multiple pregnancy (pregnancy of twins)[5], then the process after birth is quite long and the mother is in most cases unconscious due to anesthetic conditions that are administered so that she won't feel the pain.

Therefore, the baby in most cases is taken into the care unit/ nursery without the knowledge of the mother and here any fraud actions can be done without the knowledge of the mother. In case the

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