Artificial Insemination Record Management In Dairy System

Darshana Kodler[1], Mangala A G[2]
[1]Dept of MCA
[2]Asst. Professor, Dept of MCA
[1, 2] NMAM institute of Technology, Nitte,

Abstract- *This paper is presents the design of a database system for an Artificial Insemination(AI) using VB.NET code and SQL Server 2005 database storage that performs the record management of artificial insemination, pregnancy test and delivery record functions. The AI staff can manage and access the particular cow and buffalo's information, like, artificial insemination, pregnancy test and delivery record. The system will also provide the ability to maintain the semen stock details and generating the bills.*

Keywords- AI; VB.NET; database; pregnancy test; delivery record; SQL Server;

I. INTRODUCTION

Visual Basic .NET (VB.NET) could be a multi-paradigm, OOP language, enforced using the .NET Framework. The strength of the VB lies in its good user interface and the speed at which we can create Various types of applications and services [1]. SQL Server 2005 is used to store the data. SQL Server is also presents a highly scalable, highly adaptable data architectural platform against which you can build any conceivable application. It supports different data types and also it is a powerful, comprehensive database environment [2].

The paper displays the design of Artificial Insemination Record Management in Dairy System(AIRMDS). The main intention of AIRMDS is to keep all the records properly [3]. AI staffs are still using hand written records and even some AI staffs does not maintain any records properly. In the manual record keeping system, normally it takes more time and it's difficult to find some very important data whenever you want and also difficult to take a decision. Thus, an AI staff takes less time to analyze and use its pregnancy test results to take a good decision [4]. This software can be used by a single user, that is Administrator only. The Administrator will be able to perform the operations like create, display, update and delete details to their AIRMDS. All the details will be stored in SQL Server 2005 database. The application was written in VB .NET and SQL Server 2005. In the upcoming section will introduce the system analysis and design, application and then the conclusion follows.

II. SYSTEM ANALYSIS AND DESIGN

Dairy management software package is especially classified into 3 types hence they are: easy event and record show program, fully-featured management program and integrated management program [5]. An easy event and record show program is meant to stay and consider the records solely. Whereas, the fully-featured management program, not solely keeps record, however additionally analyze them. Whereas the integrated management program, may be a full-featured management program that consists of real time sensors and monitors like milk flow meters and feeding systems [4]. During this paper, AIRMDS was designed with the help of fully-featured management program approach.

AIRMDS was developed with the help of waterfall model SDLC technique. In waterfall model we have different type of phases. So, With the help of these phases we can develop the AIRMDS software. Figure 1 shows these phases.

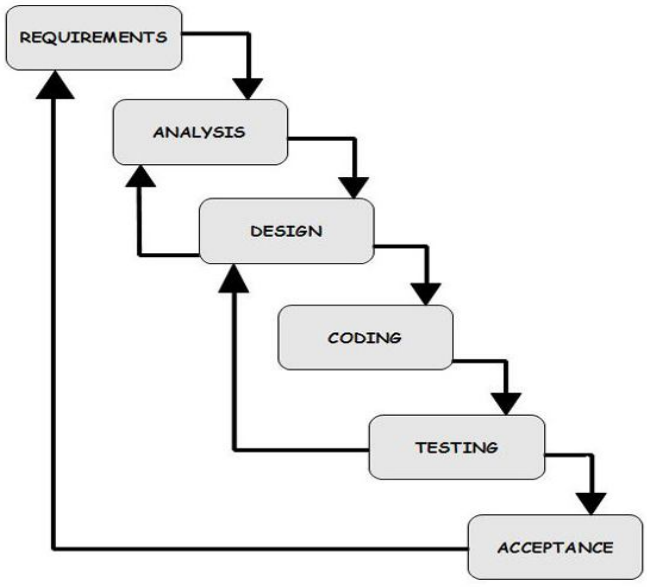

Figure 1: SDLC Phases (Waterfall Model).

In the phase of requirement analysis and planning, we just collecting all the requirements and information from the AI staff and farmer, and analyze the information to make a proper planning for the system design. This phase is very important, because the main aim of the AIRMDS is not to burden users with complex data, which is very difficult to analyze and takes up lot of time.

The AIRMDS should be easy to use and effective. Hence, the system should be very useful, such that the stored data must have the vision of producing truthful info in the future [6]. The record must be kept in a particular format that can be used for a long time and it will help for future. Hence the information could be analysed and able to help the farmer to take a good decision for future planning.

In AIRMDS, an interface is very user-friendly, it will help to keep the records efficiently, which could help the farmer and the AI staff to evaluate his cow's or buffalo's performance.

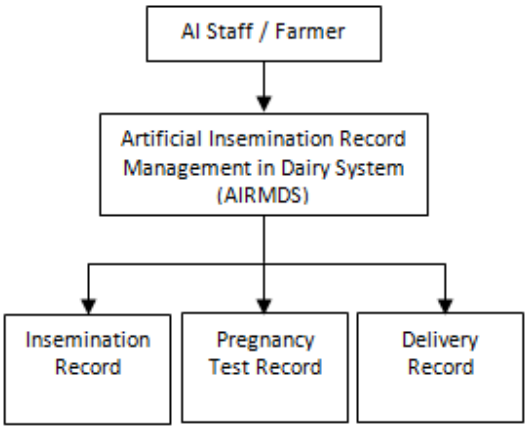

Figure 2: Three main modules in AIRMDS

AI records of a cow/buffalo will help to know the exact dates for the AI, pregnancy test and delivery of the cow/buffalo. Hence there is no chance of losing the records and not struggle to remembering the dates. These info's are very helpful in the future to remembering all the details. And it also helps new AI staff.

III. APPLICATION

AIRMDS was developed using Visual Basic .NET 2008 as a front-end software, so it will help to maintain the logics and to develop a good interface. And SQL Server 2005 as a back-end database to store the records. This application was chosen because its inexpensive. There is a feature to export the data from database to Microsoft Office Excel.

AIRMDS was architected with Insemination record, Pregnancy record and Delivery record interfaces. Whereas, the Insemination record have two sub-interfaces, which are the New insemination record and Repeat insemination record. Figure 3 shows the system architecture of AIRMDS.

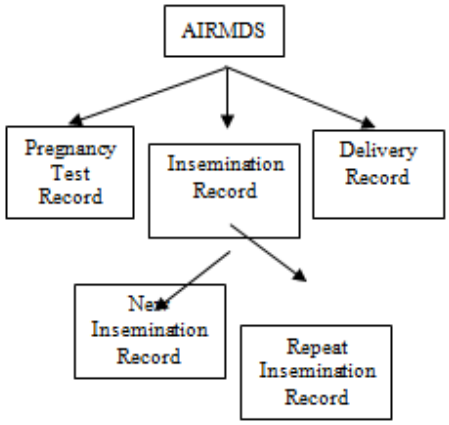

Figure 3: AIRMDS System Architecture.

AIRMDS was designed with the help of logical sequence of steps. The input is received from the AI staff. The AI staff has to first add a New insemination record for each cow/buffalo, where each record should have a unique Auto generated AI Serial number. Then all the modules should be filled with valid input and add the new record to the database table. Figure 4 shows the add new insemination record.

In pregnancy test form, the AI staff can add the pregnancy details, after testing the cow/buffalo. If the test is passed then it will add it on the pregnancy test table, if it is failed in the test, then add the pregnancy test details to pregnancy test table as well as the repeat insemination table. Because once it fails then it will automatically the AI staff can do the repeat insemination. Figure 5 shows the pregnancy test record, and Figure 6 shows the repeat insemination record.

Once the pregnancy test is passed, then it will wait up to 9 and ½ months for delivery. After calf birth the AI staff can add the delivery records to the delivery table. Figure 7 shows the delivery record

AIRMDS is also provide the features like, generating the bills, generating the monthly report, generating the yearly report and also change the price plans for AI, Pregnancy test and Delivery of cow/buffalo.

IV. CONCLUSION

The AIRMDS can keep track of each and every cow/buffalo's insemination record, pregnancy test record and

delivery record. It is the best method for the AI staff to have an AIRMDS database. The development of AIRMDS with usage of common software proves that a user friendly and inexpensive digitalized record keeping system could be easily implemented.

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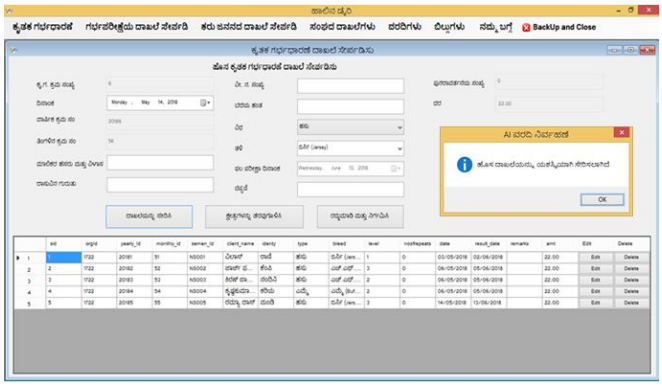

Figure 4: Add new insemination record

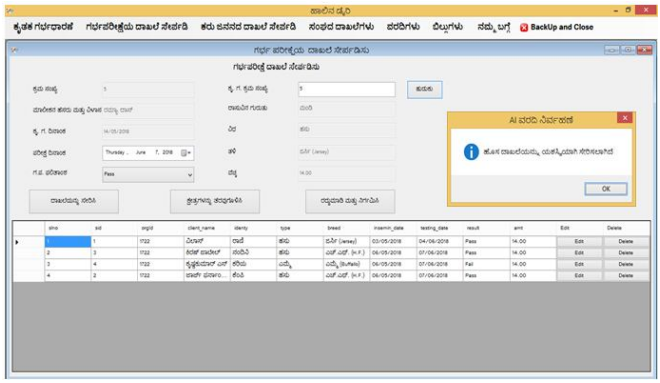

Figure 5: Pregnancy test record

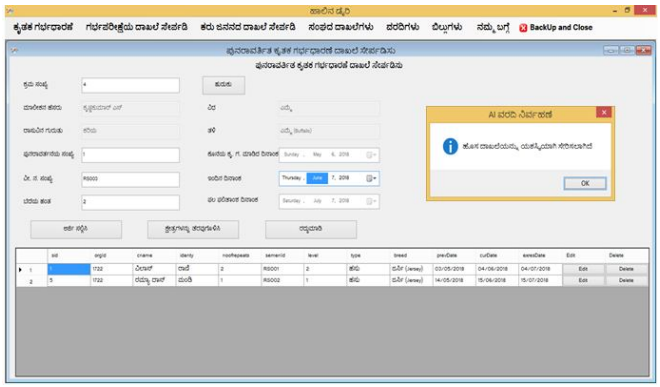

Figure 6: Repeat insemination record

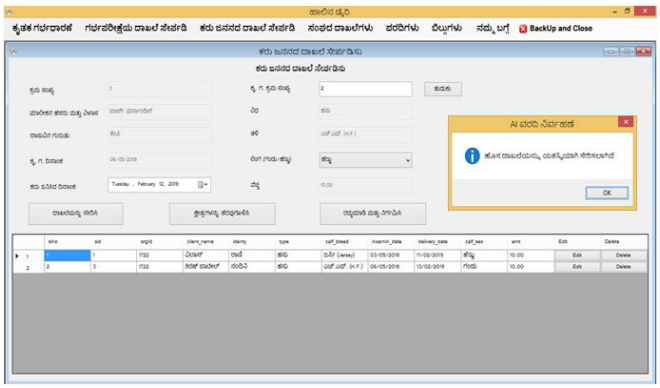

Figure 7: Delivery record