

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యా ప్రవర్ధకం

CERTIFICATE

This is to certify that the Project Report entitled "IOT BASED GARBAGE MONITORING USING ARDUINO" was submitted by


Y.RAMA DURGA	1823021
M.RAMYA	1823001
M.ANURADHA	1823002
D.SOWJANYA	1823009
T.N.D.BHAVANI	1823005

III.B.com (Computer applications) under the guidance of Smt. G.Satya Suneetha, , lecturer in Computer Applications, A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), Jagannaickpur, Kakinada, in the partial fulfillment of the requirement for the award of Bachelor of Commerce in Computer Applications. The project work is completed in a systematic way.

Suneetha 10/8/21
Project Guide

N.N.S. Eswaran 10/8/21
Head of the Department

H. Suvachala
Principal 11/8/21


External Examiner

1. INTRODUCTION

We are living in an age where tasks and systems are fusing together with the power of IOT to have a more efficient system of working and to execute jobs quickly! With all the power at our finger tips this is what we have come up with. The Internet of Things (IoT) shall be able to in corporate transparently and seamlessly a large number of different systems, while providing data for millions of people to use and capitalize. Building a general architecture for the IoT is hence a very complex task, mainly because of the extremely large variety of devices, link layer technologies, and services that may be involved in such a system. One of the main concerns with our environment has been solid waste management which impacts the health and environment of our society. The detection, monitoring and management of wastes is one of the primary problems of the present era. The traditional way of manually monitoring the wastes in waste bins is a cumbersome process and utilizes more human effort, time and cost which can easily be avoided with our present technologies. This is our solution, a method in which waste management is automated. This is our IoT Garbage Monitoring system, an innovative way that will help to keep the cities clean and healthy.

The problem

Nowadays, there are tons of flats and apartments which have been built in the rapid urbanization area. This is due to high housing demands which have been drastically risen as a result of migration from villages to cities to find work. In order to accommodate the growing population in the urban area, the government has also constructed more apartment complexes. There are several issues faced by the residents of the flats. One of them is disposal of solid waste. Unlike private houses, the residents of all the apartments use a common dustbin, which tends to fill up very quickly. This overflowing of garbage is a sanitary issue which might cause diseases like cholera and dengue. Moreover it is a waste of fuel to travel around a complex or an area to find that some of the garbage are filled and some are not. Also, on rare days, problems might arise that there is so much garbage that the truck doesn't have enough capacity. The idea struck us when we observed that the garbage truck used to go around the town to collect solid waste twice a day. Although this system was thorough it was very inefficient. For example let's say street A is a busy street and we see that the garbage fill up really fast where as may be street B even after. Two days the bin isn't even half full. This example is something that actually happens thus it led us to the "Eureka" moment!

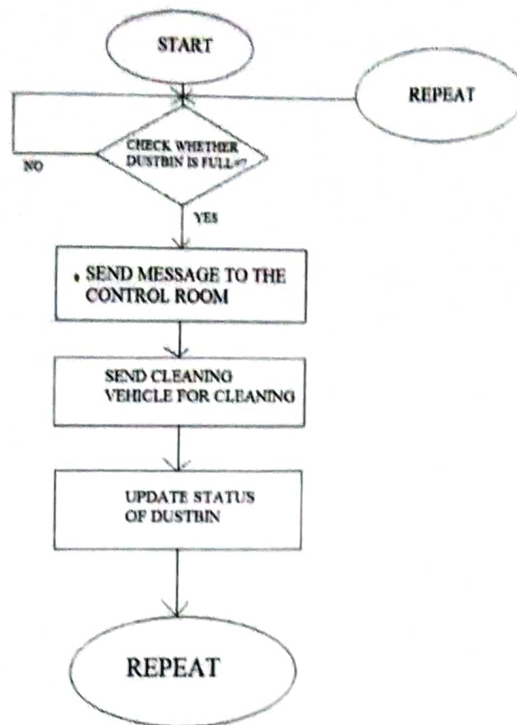


Figure1:Flowchartofproject

What our system does is it gives a real time indicator of the garbage level in a trashcan at any given time. Using that data we can then optimize waste collection route and ultimately reduce fuel consumption. It allows trash collectors to plan their daily/weekly pick up schedule. An **Ultrasonic Sensor** is used for detecting whether the trash can is filled with garbage or not. Here Ultrasonic Sensor is installed at the top of Trash Can and will measure the distance of garbage from the top of Trash can and we can set a threshold value according to the size of trash can. If the distance will be less than this threshold value, means that the Trash can is full of garbage and we will print the message "Basket is Full" on the message and if the distance will be more than this threshold value, then we will print the distance remaining for the garbage vat to be full.

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE



స్త్రీ విద్యా ప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project on "**HEALTH MONITORING SYSTEM**" was taken up by students of B.Sc. (Computer Science) under the able guidance of **Mrs. N.Naga Subrahmanyeswari**, Department of Computer Science, **A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)**, Jagannaickpur, Kakinada. The project work is completed in a systematic way.

N.N.S. Eswari 6/8/21
Project Guide & Head of the Department

H. Sivarajala
Principal 12/8/21


External Examiner

Abstract

With an improvement in technology and miniaturization of sensors, there have been attempts to utilize the new technology in various areas to improve the quality of human life. One main area of research that has seen an adoption of the technology is the healthcare sector. The people in need of healthcare services find it very expensive this is particularly true in developing countries.

As a result, this project is an attempt to solve a healthcare problem currently society is facing. The main objective of the project was to design a remote healthcare system. It's comprised of three main parts. The first part being, detection of patient's vitals using sensors, second for sending data to cloud storage and the last part was providing the detected data for remote viewing. Remote viewing of the data enables a doctor or guardian to monitor a patient's health progress away from hospital premises.

The Internet of Things (IoT) concepts have been widely used to interconnect the available medical resources and offer smart, reliable, and effective healthcare service to the patients. Health monitoring for active and assisted living is one of the paradigms that can use the IoT advantages to improve the patient's lifestyle. In this project, I have presented an IoT architecture customized for healthcare applications. The aim of the project was to come up with a Remote Health Monitoring System that can be made with locally available sensors with a view to making it affordable if it were to be mass produced.

Hence the proposed architecture collects the sensor data through Arduino microcontroller and relays it to the cloud where it is processed and analyzed for remote viewing. Feedback actions based on the analyzed data can be sent back to the doctor or guardian through Email and/or SMS alerts in case of any emergencies.

1. Project Description

1.1 Background of the study

What is a Remote Health Monitoring System?

A Remote health monitoring system is an extension of a hospital medical system where a patient's vital body state can be monitored remotely. Traditionally the detection systems were only found in hospitals and were characterized by huge and complex circuitry which required high power consumption. Continuous advances in the semiconductor technology industry have led to sensors and microcontrollers that are smaller in size, faster in operation, low in power consumption and affordable in cost.

This has further seen development in the remote monitoring of vital life signs of patients especially the elderly. The remote health monitoring system can be applied in the following scenarios:

1. A patient is known to have a medical condition with unstable regulatory body system. This is in cases where a new drug is being introduced to a patient.
2. A patient is prone to heart attacks or may have suffered one before. The vitals may be monitored to predict and alert in advance any indication of the body status.
3. Critical body organ situation
4. The situation leading to the development of a risky life-threatening condition. This is for people at an advanced age and maybe having failing health conditions.
5. Athletes during training. To know which training regimes will produce better results.

In recent times, several systems have come up to address the issue of remote health monitoring. The systems have a wireless detection system that sends the sensor information wirelessly to a remote server. Some even adopted a service model that requires one to pay a subscription fee. In developing countries, this is a hindrance as some people cannot use them due

to cost issue involved. There is also the issue of internet connectivity where some systems to operate, good quality internet for a real-time remote connection is required. Internet penetration is still a problem in developing countries.

Many of the systems were introduced in the developed countries where the infrastructure is working perfectly. In most cases, the systems are adapted to work in developing countries. To reduce some of these problems there is need to approach the remote detection from a ground-up approach to suit the basic minimal conditions presently available in developing countries.

A simple patient monitoring system design can be approached by the number of parameters it can detect. In some instances, by detecting one parameter several readings can be calculated. For simplicity considerations parameter detection are:

i) Single parameter monitoring system:

In this instance, a single parameter is monitored e.g. Electrocardiogram (ECG) reading. From the ECG or heartbeat detection, several readings can be got depending on the algorithm used. An ECG reading can give the heart rate and oxygen saturation.

ii) Multi-parameter monitoring system:

This has multiple parameters being monitored at the same time. An example of such a system can be found in High Dependency Units (HDU), Intensive Care Units (ICU), during the surgery at a hospital theatre or Post surgery recovery units in Hospitals. Several parameters that are monitored include the ECG, blood pressure, respiration rate. The Multiparameter monitoring system basically proof that a patient is alive or recovering. In developing countries, just after retiring from their daily career routine majority of the elderly age group, move to the rural areas. In developed countries, they may move to assisted living group homes. This is where a remote health monitoring system can come in handy.

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యా ప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project Report entitled "E-BUSINESSWEBSITEDESIGN" was submitted by

S.SATYA VEERA LAKSHMI	1823020
P.SAI DEVI	1823030
J.DURGA	1823025
R.GIRIJARAMANI	1823018

III.B.com (Computer applications) under the guidance of Smt. G.Satya Suneetha, , lecturer in Computer Applications, A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), Jagannaickpur, Kakinada, in the partial fulfillment of the requirement for the award of **Bachelor of Commerce in Computer Applications**. The project work is completed in a systematic way.

Suneetha 11/8/21
Project Guide

N.N.S. Swathi 11/8/21
Head of the Department

H. Sivarajah 11/8/21
Principal External Examiner

ABSTRACT

This report is conducted in order to set the foundations upon which the final project of my MSc in Advanced Computer Science and IT Management will be built. The title of the project is: "Website Development Project: Building an IT employment e-Business Website" and is supervised by Dr. Donal Flynn. The main target of this report is to conduct a thorough and in-depth analysis of the vast field of e-Business and at the same time explore the opportunities and the conditions that could lead into building a successful e-Business website on Information Technology employment.

The approach that was followed was to initially carry out a survey of relevant literature and related work on the broad spectrum of e-Business trying to examine not only the technical dimensions of the subject but also the business and the social ones. E-Business has a growing impact on our world and has revolutionized many aspects of human activity. Understanding its wider context is essential. The literature review tries to examine this impact and reach into useful conclusions as to where the project should focus on, in order to be successful. The success and failure factors of e-Business is another issue that is examined along with some cases of companies that managed to effectively implement e-Business in their operations and others that did not. Finally, there is a presentation and comparison of some well established website development methods. This comparison aims to show the advantages and disadvantages of these methods. This can be vital in order to exploit their strong points and avoid similar mistakes in the methodology that will be finally applied for the development of the website.

The second part of the report aims to present the methodology that will be followed throughout the project. The main objectives and goals of the project are described in this part, along with the project plan. Furthermore this part involves research on some key issues of the development methodology that was decided, like website evaluation, market research and business models suitable for e-Business.

1. INTRODUCTION

Technological achievements always had a great impact on every aspect of human society and affected our everyday life in a variety of ways. It is a technological breakthrough, that, over the last two decades, revolutionized our communication, entertainment and business methods and practices. Internet was created in the late 60s as a small network of computers and has evolved into the main and most essential link between companies, governments and individuals. Internet surpasses geographical boundaries, time limitations, cost restrictions. Furthermore, it is easily accessible by anyone. It is a low cost way for pioneering technologies, business models and ideas to reach a great number of people and provides the perfect environment for entrepreneurs.

With Internet's popularity on the rise, it became clear that the business world could not overlook this phenomenon. According to Chaffey (2002) companies need to find a way to implement all these new electronic ways of communication and transaction into their traditional business procedures. An industry that has been transformed by Web technologies is the employment industry. Information and Communication technologies have transformed the traditional methods and practices applied in the employment sector. Online applications, online psychometric tests, huge databases of candidates and vacancies, online communication, are some of the most important changes that Internet has introduced in the employment field.

The reasons that led to the huge development of the Internet as a mean to assist in job search, are highly related with its nature. It provides a very cheap way for companies to recruit candidates and usually a totally free way for candidates to search for suitable vacancies (Kuhn and Skuterud, 2004; Stevenson, 2008). Moreover, Internet services "offer firms and workers the promise of instant access to a much larger number of possible matches than traditional channels, as well as the potential for the exchange of much more detailed information about both worker and job attributes" (Kuhn and Skuterud, 2004). This huge amount of information that can be easily accessed is the key to the success of employment websites. According to a survey on the internet usage, 75% of the job get job information through the internet rather than using other more traditional methods, like connections and newspapers. (KISA, 2010)

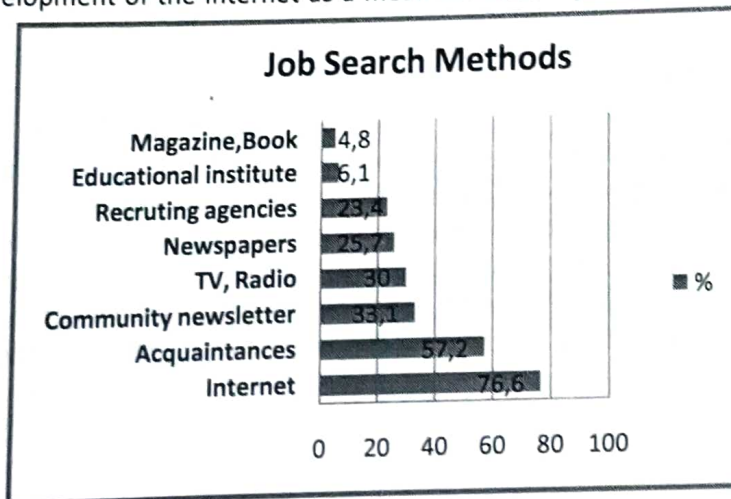


Figure 1: Job search methods (Source: KISA, 2010)

1.1 Definition of E-Business

This turn towards Internet based technologies generated a new status quo in the business world. E-business was defined by IBM back in 1997, as "the transformation of key business processes through the use of Internet technologies". According to Chaffey (2002), e-business is described as "all the electronically mediated information exchanges, both within an organization and with external stakeholders, supporting the range of business processes." Boone and Ganeshan (2007) define e-Business technologies as "the use of Internet or any digitally enabled inter- or intra- organizational information technology to accomplish business processes". Finally, Damanpour (2001) provides a similar definition. "E-Business is any "net" business activity that transforms internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy".

1.2 Short History of E-Business

Despite the fact that e-business is a relatively new trend in the business sector, its brief history is filled with controversial events. The rapid growth of the popularity of the Web from 1995 was accompanied by a highly profitable period for e-business companies. Setting up a fully functional e-Business website was very easy and cost efficient and at that time it was thought to guarantee success and profits (O'Connor and Galvin, 1998; Janenko, 2003). The number of e-businesses kept growing in an attempt for everybody to have a share from the profit pie. On the turn of the century, their number reached its peak and their profit opportunities and potential financial growth was capped. This led to the huge stock market collapse of many e-business companies which is known as dot.com bust. After a five year period where companies had to reevaluate their strategic approach towards e-commerce, growth of e-businesses started to increase again, reaching double digit level through the current period.

1.3 Scope and Focus of the Report

The explosive growth of the e-Business over the last two decades, has captured the attention of many researchers and academics from various scientific fields. Recognizing the diversity of the nature of an e-Business, which complies with the diverse nature of the Internet, this report tries to examine the topic from a variety of viewing angles. According to Laudon and Traver (2007, p.38), e-Business follows the same pattern as any previous technology driven revolution. *"Technologies develop first and then these technologies are exploited commercially. Once commercial exploitation of these technologies becomes widespread, a host of social, cultural and political issues arise."*

Although the main goal of the project is to create an e-Business for IT employment, the background report's goal is to examine the whole idea of e-Business in depth and look at different issues that arise. It does not focus on examining the technical and development side of building an e-Business website. Furthermore it does not focus on literature work that deals solely with employment e-Businesses. The reason that this approach was followed, is that the general rules and the theoretical background that define the framework upon which, an e-Business is built, are the same, despite the fact that the idea behind each e-Business may differ. The report tries to analyze the methods and the strategies that lead to a successful e-Business and the reasons behind this success. Examining the topic of e-Business as a whole, could lead to more secure conclusions, regarding the characteristics of a successful employment e-Business.

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యా ప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project Report entitled "E-BUSINESSWEBSITEDESIGN" was submitted by

S.SATYA VEERA LAKSHMI	1823020
P.SAI DEVI	1823030
J.DURGA	1823025
R.GIRIJARAMANI	1823018

III.B.com (Computer applications) under the guidance of Smt. G.Satya Suneetha, , lecturer in Computer Applications, **A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)**, Jagannaickpur, Kakinada, in the partial fulfillment of the requirement for the award of **Bachelor of Commerce in Computer Applications**. The project work is completed in a systematic way.

Suneetha
11/8/21
Project Guide

N.N.S. Gowari
11/8/21
Head of the Department

H. Suvachala
11/8/21
Principal

[Signature]
External Examiner

ABSTRACT

This report is conducted in order to set the foundations upon which the final project of my MSc in Advanced Computer Science and IT Management will be built. The title of the project is: "Website Development Project: Building an IT employment e-Business Website" and is supervised by Dr. Donal Flynn. The main target of this report is to conduct a thorough and in-depth analysis of the vast field of e-Business and at the same time explore the opportunities and the conditions that could lead into building a successful e-Business website on Information Technology employment.

The approach that was followed was to initially carry out a survey of relevant literature and related work on the broad spectrum of e-Business trying to examine not only the technical dimensions of the subject but also the business and the social ones. E-Business has a growing impact on our world and has revolutionized many aspects of human activity. Understanding its wider context is essential. The literature review tries to examine this impact and reach into useful conclusions as to where the project should focus on, in order to be successful. The success and failure factors of e-Business is another issue that is examined along with some cases of companies that managed to effectively implement e-Business in their operations and others that did not. Finally, there is a presentation and comparison of some well established website development methods. This comparison aims to show the advantages and disadvantages of these methods. This can be vital in order to exploit their strong points and avoid similar mistakes in the methodology that will be finally applied for the development of the website.

The second part of the report aims to present the methodology that will be followed throughout the project. The main objectives and goals of the project are described in this part, along with the project plan. Furthermore this part involves research on some key issues of the development methodology that was decided, like website evaluation, market research and business models suitable for e-Business.

1. INTRODUCTION

Technological achievements always had a great impact on every aspect of human society and affected our everyday life in a variety of ways. It is a technological breakthrough, that, over the last two decades, revolutionized our communication, entertainment and business methods and practices. Internet was created in the late 60s as a small network of computers and has evolved into the main and most essential link between companies, governments and individuals. Internet surpasses geographical boundaries, time limitations, cost restrictions. Furthermore, it is easily accessible by anyone. It is a low cost way for pioneering technologies, business models and ideas to reach a great number of people and provides the perfect environment for entrepreneurs.

With Internet's popularity on the rise, it became clear that the business world could not overlook this phenomenon. According to Chaffey (2002) companies need to find a way to implement all these new electronic ways of communication and transaction into their traditional business procedures. An industry that has been transformed by Web technologies is the employment industry. Information and Communication technologies have transformed the traditional methods and practices applied in the employment sector. Online applications, online psychometric tests, huge databases of candidates and vacancies, online communication, are some of the most important changes that Internet has introduced in the employment field.

The reasons that led to the huge development of the Internet as a mean to assist in job search, are highly related with its nature. It provides a very cheap way for companies to recruit candidates and usually a totally free way for candidates to search for suitable vacancies (Kuhn and Skuterud, 2004; Stevenson, 2008). Moreover, Internet services "offer firms and workers the promise of instant access to a much larger number of possible matches than traditional channels, as well as the potential for the exchange of much more detailed information about both worker and job attributes" (Kuhn and Skuterud, 2004). This huge amount of information that can be easily accessed is the key to the success of employment websites. According to a survey on the internet usage, 75% of the job get job information through the internet rather than using other more traditional methods, like connections and newspapers. (KISA, 2010)

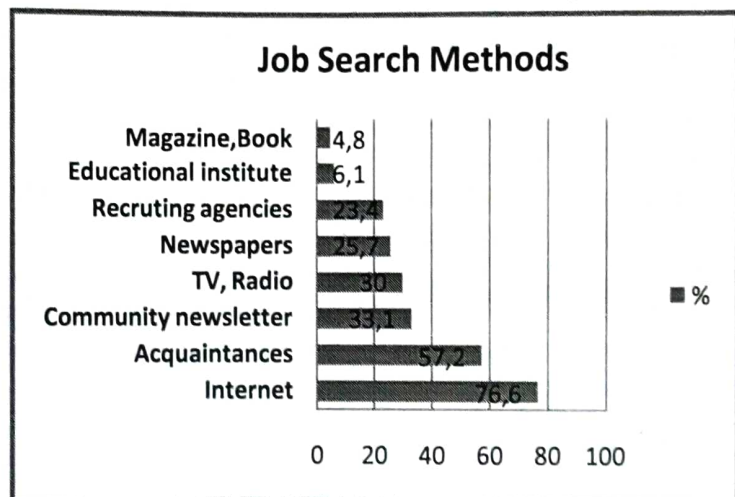


Figure 1: Job search methods (Source: KISA, 2010)

1.1 Definition of E-Business

This turn towards Internet based technologies generated a new status quo in the business world. E-business was defined by IBM back in 1997, as "the transformation of key business processes through the use of Internet technologies". According to Chaffey (2002), e-business is described as "all the electronically mediated information exchanges, both within an organization and with external stakeholders, supporting the range of business processes." Boone and Ganeshan (2007) define e-Business technologies as "the use of Internet or any digitally enabled inter- or intra- organizational information technology to accomplish business processes". Finally, Damanpour (2001) provides a similar definition. "E-Business is any "net" business activity that transforms internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy".

1.2 Short History of E-Business

Despite the fact that e-business is a relatively new trend in the business sector, its brief history is filled with controversial events. The rapid growth of the popularity of the Web from 1995 was accompanied by a highly profitable period for e-business companies. Setting up a fully functional e-Business website was very easy and cost efficient and at that time it was thought to guarantee success and profits (O'Connor and Galvin, 1998; Janenko, 2003). The number of e-businesses kept growing in an attempt for everybody to have a share from the profit pie. On the turn of the century, their number reached its peak and their profit opportunities and potential financial growth was capped. This led to the huge stock market collapse of many e-business companies which is known as dot.com bust. After a five year period where companies had to reevaluate their strategic approach towards e-commerce, growth of e-businesses started to increase again, reaching double digit level through the current period.

1.3 Scope and Focus of the Report

The explosive growth of the e-Business over the last two decades, has captured the attention of many researchers and academics from various scientific fields. Recognizing the diversity of the nature of an e-Business, which complies with the diverse nature of the Internet, this report tries to examine the topic from a variety of viewing angles. According to *Laudon and Traver (2007, p.38)*, e-Business follows the same pattern as any previous technology driven revolution. *"Technologies develop first and then these technologies are exploited commercially. Once commercial exploitation of these technologies becomes widespread, a host of social, cultural and political issues arise."*

Although the main goal of the project is to create an e-Business for IT employment, the background report's goal is to examine the whole idea of e-Business in depth and look at different issues that arise. It does not focus on examining the technical and development side of building an e-Business website. Furthermore it does not focus on literature work that deals solely with employment e-Businesses. The reason that this approach was followed, is that the general rules and the theoretical background that define the framework upon which, an e-Business is built, are the same, despite the fact that the idea behind each e-Business may differ. The report tries to analyze the methods and the strategies that lead to a successful e-Business and the reasons behind this success. Examining the topic of e-Business as a whole, could lead to more secure conclusions, regarding the characteristics of a successful employment e-Business.

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE



స్త్రీవిద్యాప్రవర్ధకం

CERTIFICATE

This is to certify that the Project on "HEALTH MONITORING SYSTEM" was taken up by students of B.Sc. (Computer Science) under the able guidance of Mrs. N.Naga Subrahmanyeswari, Department of Computer Science, A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A), Jagannasickpur, Kakinada. The project work is completed in a systematic way.

N.N.S. Subrahmanyeswari
Project Guide & Head of the Department

H. Suvarchala
Principal 12/1/24

External Examiner

1. Project Description

1.1 Background of the study

What is a Remote Health Monitoring System?

A Remote health monitoring system is an extension of a hospital medical system where a patient's vital body state can be monitored remotely. Traditionally the detection systems were only found in hospitals and were characterized by huge and complex circuitry which required high power consumption. Continuous advances in the semiconductor technology industry have led to sensors and microcontrollers that are smaller in size, faster in operation, low in power consumption and affordable in cost.

This has further seen development in the remote monitoring of vital life signs of patients especially the elderly. The remote health monitoring system can be applied in the following scenarios:

1. A patient is known to have a medical condition with unstable regulatory body system. This is in cases where a new drug is being introduced to a patient.
2. A patient is prone to heart attacks or may have suffered one before. The vitals may be monitored to predict and alert in advance any indication of the body status.
3. Critical body organ situation
4. The situation leading to the development of a risky life-threatening condition. This is for people at an advanced age and maybe having failing health conditions.
5. Athletes during training. To know which training regimes will produce better results.

In recent times, several systems have come up to address the issue of remote health monitoring. The systems have a wireless detection system that sends the sensor information wirelessly to a remote server. Some even adopted a service model that requires one to pay a subscription fee. In developing countries, this is a hindrance as some people cannot use them due

to cost issue involved. There is also the issue of internet connectivity where some systems to operate, good quality internet for a real-time remote connection is required. Internet penetration is still a problem in developing countries.

Many of the systems were introduced in the developed countries where the infrastructure is working perfectly. In most cases, the systems are adapted to work in developing countries. To reduce some of these problems there is need to approach the remote detection from a ground-up approach to suit the basic minimal conditions presently available in developing countries.

A simple patient monitoring system design can be approached by the number of parameters it can detect. In some instances, by detecting one parameter several readings can be calculated. For simplicity considerations parameter detection are:

i) Single parameter monitoring system:

In this instance, a single parameter is monitored e.g. Electrocardiogram (ECG) reading. From the ECG or heartbeat detection, several readings can be got depending on the algorithm used. An ECG reading can give the heart rate and oxygen saturation.

ii) Multi-parameter monitoring system:

This has multiple parameters being monitored at the same time. An example of such a system can be found in High Dependency Units (HDU), Intensive Care Units (ICU), during the surgery at a hospital theatre or Post surgery recovery units in Hospitals. Several parameters that are monitored include the ECG, blood pressure, respiration rate. The Multiparameter monitoring system basically proof that a patient is alive or recovering. In developing countries, just after retiring from their daily career routine majority of the elderly age group, move to the rural areas. In developed countries, they may move to assisted living group homes. This is where a remote health monitoring system can come in handy.

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE



స్వీచిత్యాప్రవర్తకం

CERTIFICATE

This is to certify that the Project Report entitled "IOT BASED GARBAGE MONITORING USING ARDUINO" was submitted by

Y.RAMA DURGA	1823021
M.RAMYA	1823001
M.ANURADHA	1823002
D.SOWJANYA	1823009
T.N.D.BHAVANI	1823005

III.B.com (Computer applications) under the guidance of Smt. G.Satya Suneetha, , lecturer in Computer Applications, A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), Jagunnaickpur, Kakimada, in the partial fulfillment of the requirement for the award of Bachelor of Commerce in Computer Applications. The project work is completed in a systematic way.

Suneetha
Project Guide

N.N.S. Bowseri
Head of the Department

H. Suvachala
Principal 11/8/24

[Signature]
External Examiner

1. INTRODUCTION

We are living in an age where tasks and systems are fusing together with the power of IOT to have a more efficient system of working and to execute jobs quickly! With all the power at our finger tips this is what we have come up with. The Internet of Things (IoT) shall be able to incorporate transparently and seamlessly a large number of different systems, while providing data for millions of people to use and capitalize. Building a general architecture for the IoT is hence a very complex task, mainly because of the extremely large variety of devices, link layer technologies, and services that may be involved in such a system. One of the main concerns with our environment has been solid waste management which impacts the health and environment of our society. The detection, monitoring and management of wastes is one of the primary problems of the present era. The traditional way of manually monitoring the wastes in waste bins is a cumbersome process and utilizes more human effort, time and cost which can easily be avoided with our present technologies. This is our solution, a method in which waste management is automated. This is our IoT Garbage Monitoring system, an innovative way that will help to keep the cities clean and healthy.

The problem

Nowadays, there are tons of flats and apartments which have been built in the rapid urbanization area. This is due to high housing demands which have been drastically risen as a result of migration from villages to cities to find work. In order to accommodate the growing population in the urban area, the government has also constructed more apartment complexes. There are several issues faced by the residents of the flats. One of them is disposal of solid waste. Unlike private houses, the residents of all the apartments use a common dustbin, which tends to fill up very quickly. This overflowing of garbage is a sanitary issue which might cause diseases like cholera and dengue. Moreover it is a waste of fuel to travel around a complex or an area to find that some of the garbage are filled and some are not. Also, on rare days, problems might arise that there is so much garbage that the truck doesn't have enough capacity. The idea struck us when we observed that the garbage truck used to go around the town to collect solid waste twice a day. Although this system was thorough it was very inefficient. For example let's say street A is a busy street and we see that the garbage fills up really fast whereas maybe street B even after two days the bin isn't even half full. This example is something that actually happens thus it led us to the "Eureka" moment!

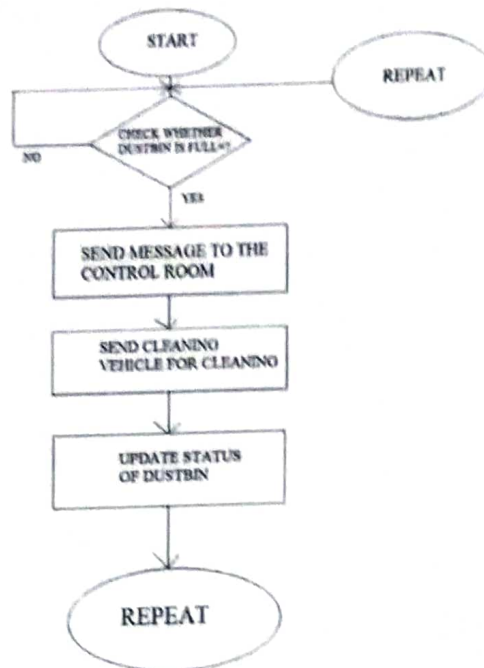


Figure1:Flowchartofproject

What our system does is it gives a real time indicator of the garbage level in a trashcan at any given time. Using that data we can then optimize waste collection route and ultimately reduce fuel consumption. It allows trash collectors to plan their daily/weekly pick up schedule. An **Ultrasonic Sensor** is used for detecting whether the trash can is filled with garbage or not. Here Ultrasonic Sensor is installed at the top of Trash Can and will measure the distance of garbage from the top of Trash can and we can set a threshold value according to the size of trash can.

If the distance will be less than this threshold value, means that the Trash can is full of garbage and we will print the message "Basket is Full" on the message and if the distance will be more than this threshold value, then we will print the distance remaining for the garbage vat to be full.

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యాప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project Report entitled "WEB APPLICATION FOR INTRA-COLLEGE COMMUNICATION SYSTEM" was submitted by

V.PREMA KUMARI	1823006
B.BINDU MADHAVI	1823008
K.JYOTHI	1823013
P.MADHURI	1823017
K.BHIVALA RANI	1823027

III.B.com (Computer applications) under the guidance of Smt. G.SatyaSuneetha, lecturer in Computer Applications, A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), Jagannaickpur, Kakinada, in the partial fulfillment of the requirement for the award of Bachelor of Commerce in Computer Applications. The project work is completed in a systematic way.

Suneetha 11/8/21
Project Guide

N.N.S. Egnani 10/8/21
Head of the Department

H. Suvarchala

Principal 11/8/21 External Examiner

2. INTRODUCTION

The "Intra-College Communication System" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and in some cases reduce the hardships faced by this existing system. Moreover this system is effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it provides it is user-friendly. Intra-College Communication System, as described above, can lead to error free, secure, reliable and fast networking system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources.

Every institution, whether big or small, has challenges to overcome and managing the information's of friends, users, shares, videos, photos. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. These systems will ultimately allow you to better manage resources.

The project includes two main sections:

- ❖ User (College Campus Portal Member):
- ❖ In this system user is only priority for accessing the "Intra-College Communication System" application.
- ❖ Here user can create his/her own profile along with all the details and his/her profile photo.
- ❖ Every users have individual & unique log in credential to go through the portal.
- ❖ This website provides separate access for different sections of college (viz. Academic, Administration, Training & Placement, Library, Finance, Examination sections).
- ❖ User can post including video, photo& any other kind of file and also can view the post in one place.
- ❖ User can also like, dislike and comments with respect to the post.
- ❖ There will be group facility which can be created by user.
- ❖ Each user can see his/her own group's post as well as other groups' post if permission is given.

- ❖ User can send message to another specific user.
- ❖ User can also report abuse to the system for any unwanted post.
- ❖ Admin:
 - ❖ Admin can modify any data and delete unwanted post and even can block users.
 - ❖ Admin can add users and provide them user id and password via OTP confirmation which will be required by the users for accessing this website.
 - ❖ Admin can block any user.

In this system developer is a part for developing the application. Every developer has a permission to access all data of database of Intra-College Communication System and also a permission for create, delete, update and many other features for betterment of security and future up gradation.

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN
(A) DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యా ప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project Report entitled "**HEALTH MONITORING**" was submitted by

M.DHARANI	1823003
R.B.V.S.AKHILA	1823019
CH.SIVA NANDINI	1823022
O.DEVI PRIYANKA	1823015
B.SIVA KUMARI	1823023

III.B.com (Computer applications) under the guidance of Smt. G.SatyaSuneetha, , lecturer in Computer Applications, **A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN(A)**, Jagannaickpur, Kakinada, in the partial fulfillment of the requirement for the award of **Bachelor of Commerce in Computer Applications**. The project work is completed in a systematic way.

Suneetha
Project Guide

N.N.S. Rao
Head of the Department

M. Suvachala
Principal

[Signature]
External Examiner

Abstract

With an improvement in technology and miniaturization of sensors, there have been attempts to utilize the new technology in various areas to improve the quality of human life. One main area of research that has seen an adoption of the technology is the healthcare sector. The people in need of healthcare services find it very expensive this is particularly true in developing countries. As a result, this project is an attempt to solve a healthcare problem currently society is facing. The main objective of the project was to design a remote healthcare system. It's comprised of three main parts. The first part being, detection of patient's vitals using sensors, second for sending data to cloud storage and the last part was providing the detected data for remote viewing. Remote viewing of the data enables a doctor or guardian to monitor a patient's health progress away from hospital premises.

The Internet of Things (IoT) concepts have been widely used to interconnect the available medical resources and offer smart, reliable, and effective healthcare service to the patients. Health monitoring for active and assisted living is one of the paradigms that can use the IoT advantages to improve the patient's lifestyle. In this project, I have presented an IoT architecture customized for healthcare applications. The aim of the project was to come up with a Remote Health Monitoring System that can be made with locally available sensors with a view to making it affordable if it were to be mass produced.

Hence the proposed architecture collects the sensor data through Arduino microcontroller and relays it to the cloud where it is processed and analyzed for remote viewing. Feedback actions based on the analyzed data can be sent back to the doctor or guardian through Email and/or SMS alerts in case of any emergencies.

1. Introduction

1.1 Background of the study

What is a Remote Health Monitoring System?

A Remote health monitoring system is an extension of a hospital medical system where a patient's vital body state can be monitored remotely. Traditionally the detection systems were only found in hospitals and were characterized by huge and complex circuitry which required high power consumption. Continuous advances in the semiconductor technology industry have led to sensors and microcontrollers that are smaller in size, faster in operation, low in power consumption and affordable in cost.

This has further seen development in the remote monitoring of vital life signs of patients especially the elderly. The remote health monitoring system can be applied in the following scenarios:

1. A patient is known to have a medical condition with unstable regulatory body system. This is in cases where a new drug is being introduced to a patient.
2. A patient is prone to heart attacks or may have suffered one before. The vitals may be monitored to predict and alert in advance any indication of the body status.
3. Critical body organ situation
4. The situation leading to the development of a risky life-threatening condition. This is for people at an advanced age and maybe having failing health conditions.
5. Athletes during training. To know which training regimes will produce better results.

In recent times, several systems have come up to address the issue of remote health monitoring. The systems have a wireless detection system that sends the sensor information wirelessly to a remote server. Some even adopted a service model that requires one to pay a subscription fee. In developing countries, this is a hindrance as some people cannot use them

due to cost issue involved. There is also the issue of internet connectivity where some systems to operate, good quality internet for a real-time remote connection is required. Internet penetration is still a problem in developing countries.

Many of the systems were introduced in the developed countries where the infrastructure is working perfectly. In most cases, the systems are adapted to work in developing countries. To reduce some of these problems there is need to approach the remote detection from a ground-up approach to suit the basic minimal conditions presently available in developing countries.

A simple patient monitoring system design can be approached by the number of parameters it can detect. In some instances, by detecting one parameter several readings can be calculated. For simplicity considerations parameter detection are:

i) Single parameter monitoring system:

In this instance, a single parameter is monitored e.g. Electrocardiogram (ECG) reading. From the ECG or heartbeat detection, several readings can be got depending on the algorithm used. An ECG reading can give the heart rate and oxygen saturation.

ii) Multi-parameter monitoring system:

This has multiple parameters being monitored at the same time. An example of such a system can be found in High Dependency Units (HDU), Intensive Care Units (ICU), during the surgery at a hospital theatre or Post surgery recovery units in Hospitals. Several parameters that are monitored include the ECG, blood pressure, respiration rate. The Multiparameter monitoring system basically proof that a patient is alive or recovering. In developing countries, just after retiring from their daily career routine majority of the elderly age group, move to the rural areas. In developed countries, they may move to assisted living group homes. This is where a remote health monitoring system can come in handy.

1.2 Statement of the problem

Remote health monitoring can provide useful physiological information in the home. This monitoring is useful for elderly or chronically ill patients who would like to avoid a long hospital stay. Wireless sensors are used to collect and transmit signals of interest and a processor is programmed to receive and automatically analyze the sensor signals. In this project, you are to choose appropriate sensors according to what you would like to detect and design algorithms to realize your detection. Examples are the detection of a fall, monitoring cardiac signals.

Using a single parameter monitoring system an approach to a remote health monitoring system was designed that extends healthcare from the traditional clinic or hospital setting to the patient's home. The system was to collect a heartbeat detection system data, fall detection system data, temperature data and few other parameters. The data from the single parameter monitoring systems was then availed for remote detection.

During design the following characteristics of the future medical applications adhered:

- a) Integration with current trends in medical practices and technology.
- b) Real-time, long-term, remote monitoring, miniature, wearable sensors and long battery life of a designed device.
- c) Assistance to the elderly and chronic patients. The device should be easy to use with minimal buttons.

**A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTER SCIENCE**



స్త్రీ విద్యా ప్రవర్ధతాం

CERTIFICATE

This is to certify that the Project on “SMART IRRIGATION SYSTEM” was
submitted by

K. Madhuri	1832016
K. Pravallika	1832017
K.S.V.S. Lavanya	1832020
K. Supraja	1832053

of B.Sc. (Computer Science) under the able guidance of
Mrs. N. Naga Subrahmanyeswari, Department of Computer Science, A.S.D
GOVT DEGREE COLLEGE FOR WOMEN (A), Jagannaickpur, Kakinada. In the
partial fulfillment of the requirement for the award of **Bachelor of Science** in
Computer Science. The project work is completed in a systematic way.

N.N.S. Eswari 6/9/21
Project Guide & Head of the Department

H. Suvarchala
Principal
12/8/21 External Examiner

Abstract

The purpose of the Smart Irrigation System is to make irrigation at large or small scale and make it smarter and more effective. Different sensors (Soil Moisture, Light, Temperature, level, rain, flow) with different another device (water pump, Battery, LCD, Solenoid valve) have been used to make this project. Using Arduino proved profitable, it is able to serve numbers of different sensors, at the same time and the markets offer various type and sizes of sensors. Arduino boards are another device. Several of design criteria had used in this system. The sensors used was perfect in detecting and sending signals to Arduino, to control the water pump and to open the solenoid valve, it has been tasted indoor as it is on the farm. The purpose of screen monitor is to show the flow for each line, which shows if there is any passing of water in pipes. Also, if it is raining the system will not work in order to save the water.

The mobile application is to control the system remotely. It allows a user to monitor the whole system and if there is any problem or passing of water user can switch off the system through this application.

1. Introduction

In late decades, there is a quick advancement in Smart Agricultural Systems [1]. Show that agriculture has great importance worldwide. Indeed, in India for example, about 70 % of the people relies upon the vital sector of agriculture [1]. In the past, irrigation systems used to be dependent on the mills to irrigate the farm by conventional methods without knowing the appropriate quantities of these crops. These old systems are a major cause of the waste of large quantities of water and thus destroy some crops because of the lack of adequate quantities of water. However, with the recent technological developments, there have been innovative systems for irrigation without the farmer interfering in the irrigation process [26].

Because the Sultanate of Oman is in a region suffering from lack of rain throughout the year and lack of groundwater, modern irrigation systems will reduce this issue of lack of water. Indeed, smart systems have proven their capability to regulate the irrigation of crops. It also works to stop the waste of water in irrigation. Furthermore, it will work to minimize number of employees which lead to saving money.

Agriculture is developing from mechanized by simple methods in the twentieth century to being automated in the 21st century. There is evolving in field operation in agriculture section, which request a high accuracy in processes to optimize output and quality of the crops, in addition, limiting the production cost. To reach these prerequisites, automation systems must be introduced. It is important that producer considers on the early framework periods of mechanics and actualizes, so can achieve an elevated level of automation [2].

In this project, we try to solve the problems of irrigation such as errors caused by farmers and the consumption of large quantities of water. These errors affect trees as their fungi may also affect the overall stock of water.

It is necessary to make effective effort and contribution to achieving the desired objectives of this system. Therefore, the effort should not be limited to individual effort. In addition farmers must be very important to achieve the high efficiency of modern irrigation systems.

With the increase of world population, the need for farming yields is increasing instantaneously. Further, the farmer's potential and abilities in the agriculture filed are reducing, this is regarding different enterprises that attract workers away from the farming zone (28% of farmers in Japan are

over 65 years old) [28]. The income in agriculture needs to continue development regarding the prediction of world population increases from 6.8 billion in 2013 to over 10 billion by 2050. Efficiencies become an essential demand with the declining of farmers potential [3].

Expected objectives of this project are facilitated and simplify the irrigation system by installing and designing the whole automatic irrigation system, increase crop performance by reducing overwatering from saturated soil. It can prevent irrigation happening on the day at the wrong time, to switch engine ON or OFF by utilizing the irrigation system, the controller will work to switch the engine, so no need for employers, to reduce mistakes of operation due to employees as much as possible and to preserve water from waste.

1.1 Problem Statement

The economy of many countries depends on agriculture. To achieve the best quality from this research, it is important to focus on some vital characteristics such as the appropriate amount of electricity as well as water supply and a suitable schedule for irrigation of crops. Farmers are facing problems in meeting these standards, especially those living in poverty. This project looks into developing an automated irrigation system that could be controlled through mobile application. This system will work to minimize the number of workers in a crop field, control and save water and electricity, Increase agricultural production using small quantities of water, minimize manual intervention in watering operations with increasing watering speed and preserving plants from fungi. All these features make these research sustainable option to be considered to improve the agriculture and irrigation efficiency.

1.2 Context of Research

Because agriculture is important, this research will focus on building system that allows for automating for irrigation process and it is controlled by the software application. We are aiming to control this system by a software application and to discover the most efficient automation machine from research studies into the fields of Agriculture systems. Building an accepted hardware machine that may be used to resolve most problems associated with irrigation technique is a challenge. However, by means of finding an efficient approach to manipulate the system, then same concept of this system can then be applied to another system. This bachelor thesis will inspect the Automation system in addition to the method used to manipulate the system and the machine

that can be solved with using this system.

The objectives to consider are:

- Simplify the irrigation system by installing and designing the whole irrigation system.
- Save energy, which allows the application of smart irrigation system used more other application.
- Optimize water consumption. Automated system fully.
- Decrease the cost of operation.
- Make system easy to use by farmers.

1.3 Methodology

The system method includes the implementation of proto-type device work robotically and controlled thru the mobile application. For the prototype format drawing up the timeline and reading related works will be step one. After looking into benefits and downsides of previous studies in the subject of an automatic irrigation system, we can start implementing the layout and automation method for executable. The timeline of the project became set on the flowchart of the project. The steps are in the following process chart:

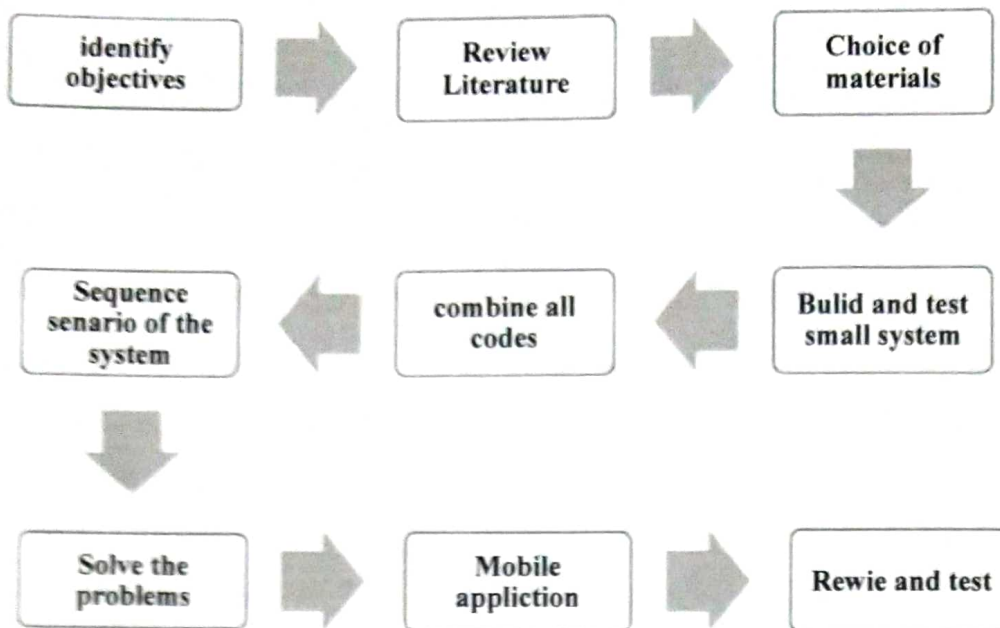


Figure 1: Process Flowchart

**A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)
DEPARTMENT OF COMPUTERS**



శ్రీవిద్యాప్రపంచం

CERTIFICATE

This is to certify that the Project on "STUDENT ONLINE REGISTRATION" was taken up by students of III.B.Sc(Computer Science) under the able guidance of Mrs. N.Naga Subrahmanyeswari, Department of Computer Science, A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A), Jagannaickpur, Kakinada. The project work is completed in a systematic way.

NNS Eswari 4/3/17
Project Guide
&

Head of the Department
IN CHARGE
DEPT. OF COMPUTER SCIENCE
ASD GOVT. DEGREE COLLEGE (W)(AUTONOMOUS)
KAKINADA

[Signature]
External Examiner

[Signature]
Principal
A.S.D.GOVT.DEGREE COLLEGE (W)
AUTONOMOUS
KAKINADA

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Online registration portal is a kind of form requested by the user, where a user can have full interaction with the database, with respect to his/her own record. User can store, retrieve and even modify his record from/in a database in respective of where the user is located, provided he is connected to internet. Online registration portal is among the services that are provided online.

Many organization and other related industries are enjoying this service for some years. While other are now migrated from their manual process in order to go with current information technological system. This research project examine the registration exercise in A.S.D. Govt. Degree College, Katsina and come up with online application system that will help the college to conduct its registration (effectively, efficiently and economically worthwhile) online.

The Online Registration Portal provides for students the option to register courses offered by their colleges during the scheduled registration periods. The students can modify their courses selection by adding and/or dropping courses. However, when the registration period is over, all previously registered courses by the students will be viewable in the system (Welback, 2008).

The project was developed using HTML and PHP in designing the front end, MySQL to create the databases as the back end and phpmyadmin serve as the interface between the front end and the back end.

1.2 Statement of the Problems

Manual registration exercise faces a number of problems, among which are;

- The need for lot of manpower to manage the registration process (even though the process will not be effective and efficient).
- The growing nature or the increasing number of student admitted every year implies much more requirement of manpower to manage the system and this has cause a lot of difficulties in locating a file that belongs to a particular person.
- There is also a tendency of misplacing or missing a student record. This occurs due to the crowd when submitting the registration document.

- Time and economic are the main factors that shall be taken into consideration when designing any system. Manual registration process does not favour these factors, because each department in the college has to provide their registration document at the beginning of each semester and the unused ones may be wasted after the registration in some cases. In some cases the form would not be ready for the students in time even if the form is ready the students has to join a long queue for them to collect their registration form which takes long time.

Using computer solution online portal as a tool for registration the problems stated above can be addressed. Some problems can be eliminated; some can be reduce to the minimal level.

1.3 Aim and Objectives

Aim:

The research work is aim to analyze the current system and to develop new online system through the following objectives:

Objectives:

1. To provide online software that enable student to register with the polytechnic online, irrespective of where the student is located.
2. To create a central database that interacts with student during the registration.
3. To provide a readymade online registration form.
4. Eliminate the tedious work by staff during registration exercise.
5. Provide quick search for student's record

1.4 Scope and Limitation

The project/research work is strictly focusing attention on finding an easier way of making registration through internet very effective. Thus, the scope of the project cover the registration process in A.S.D. Govt. Degree College and it limited to student personal information as well as course registration.