



OFFICE OF THE PRINCIPAL
PATTAMUNDAI COLLEGE, PATTAMUNDAI.

No 1089

Dt. 18/10/2021

To

Dr. S.K. Pradban

Reader in Chemistry

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 9 for the odd/even Mid-semester examination 2021 - .


Principal
Pattamundai College
18-10-21



OFFICE OF THE PRINCIPAL
PATTAMUNDAI COLLEGE, PATTAMUNDAI.

No. 1828

Dt. 09/12/2021

To

Mr Ranjan Kumar Behera

Lecturer in Commerce

Sir/Madam,

✓ You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 07 for the odd/even Mid-semester examination 2021 -


Principal

Pattamundai College
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No. 146

Dt. 10/2/2021

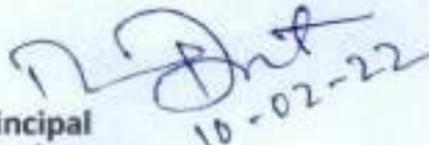
To

Dr Dushasan Parida

Reader in Chemistry

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 02 for the odd/even Mid-semester examination 2022 - .


Principal

Pattamundai College
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OFFICE OF THE PRINCIPAL
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No 1325

Dt. 9/12/2021

To

Dr Ramesh Kumar Sahoo
Reader in physics

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
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Pattamundai College



OFFICE OF THE PRINCIPAL
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No 1059

Dt. 18/10/2021

To

Dr. A. K. Das
Reader in Botany

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 4 for the odd/even Mid-semester examination 2021 - .


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Pattamundai College
Pattamundai College

18-10-21



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No. 1089

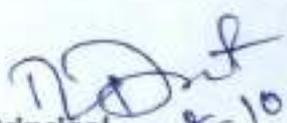
Dt. 18/10/21

To

Dr M. K. Nayak
Asst in English

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 3 for the odd/even Mid-semester examination 2021 - .


Principal

18-10-21
Pattamundai College
Principal
Pattamundai College



OFFICE OF THE PRINCIPAL
PATTAMUNDAI COLLEGE, PATTAMUNDAI.

No 1328

Dt. 09/12/2021

To

Mr Rabindra Kesh Panda
Reader on History

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 1 for the odd/even Mid-semester examination 2021 - .


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Pattamundai College
Pattamundai College
09-12-21



OFFICE OF THE PRINCIPAL
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No 146

Dt. 10/2/2022

To

Dr Premalata Rout

Reader in Odia

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
✓ CORE/GE/DSE/AECC/SEC 1 for the odd/even Mid-semester examination 2022 - .


Principal

Pattamundai College

Pattamundai College

10-02-22



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No 1328

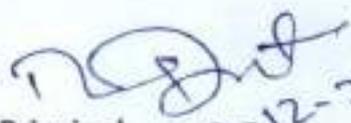
Dt. 09/12/2021

To

Mr Subhasis Mishra
Lect in Economics

Sir/Madam,

✓ You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 6 for the odd/even Mid-semester examination 20 21-21.


Principal
Pattamundai College
Pattamundai College®
09-12-21



OFFICE OF THE PRINCIPAL
PATTAMUNDAI COLLEGE, PATTAMUNDAI.

No. 1089

Dt. 18/10/2021

To

Mrs Nibedita Nayak
Rect on Eco

Sir/Madam,

You are appointed to evaluate answer scripts/set question papers of
CORE/GE/DSE/AECC/SEC 8 for the odd/even Mid-semester examination 20__ - __.


Principal
Pattamundai College
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Pattamundai College
18-10-21

PROJECT REPORT

ON

"EARTHWORM PROJECT FOR SUSTAINAABLE AGRICULTURE"

2021-22



**PREPARED BY
DEPARTMENT OF BOTANY
PATTAMUNDAI COLLEGE
PATTAMUNDAI
KENDRAPARA
754215**

REPORT

A project was undertaken by +3 3rd year students of Department of Botany on "Earthworm project for sustainable Agriculture" under the guidance of Dr. Anjali Kumari Dash, HOD Botany for the academic year 2021-22. 15 numbers of students have been participated in this project work. They have worked for 3 months to complete this project. They prepared vermicompost by using cow dung, decomposing vegetables, food waste and bedding materials with the help of earthworm in a tank by maintaining the temperature of the tank 22^oC to 25^oC with 82-85% moisture content. They have taken two same sized healthy plants of Kalanchoe pinnata, Tagetes patula and Andrographis paniculata for their experiment and applied vermicompost to one plant of each species and kept for observation for about 15 days. After 15 days it was observed that the plants with vermicompost had better growth than the plants without vermicompost.

Anjali Kumari Dash
Signature of Supervisor


02.05.2022
Signature of HOD
Pattamundai college
pattamundai

Principal,
pattamundai college

Abstract

Vermicompost restores microbial population which includes nitrogen fixers, phosphorous solubilizer etc. It provides major and micronutrients to the plants. It also improves soil texture and water holding capacity of the soil.

We 15 students of our botany department started preparing vermicompost by using cow dung, decomposing vegetables, food waste and bedding materials with the help earthworm, in a tank. Temperature of the tank was 22°C - 25°C with 82-85% of moisture content. It took 3 months to convert it in a usable form. Then we took two same sized healthy plant of *Kalanchoe Pinnata*, *Tagetes patula*, *Andrographis paniculata* and then the prepared vermicompost was applied to one plant of each species. Each plant was left for 15 days. Then it was observed that the plants in which the vermicompost was applied had a noticeable growth in shoot and root as well.

INTRODUCTION

The study area is located near the Pattamundai town. Pattamundai is located at 20.57°N 86.57°E & 22 km from the Bay of Bengal in the Utkal Plains, at an elevation of 6 m from sea level. Pattamundai is a flat, low-lying delta region in the Lower Mahanadi River basin. The Brahmani river divides it from the Aul block. The Pattamundai Canal running from Cuttack to Alva Lock (80.5 km) constructed by the East India Company during the mid 19th century, is a major irrigation canal passing through the city. The river Brahmani is passing by the side of this municipality. The soil with high organic matter 5-15 % formed in temperate and cool humid region and low (1-3 %) in soil arid and semi-arid zones. The average rain-fall in the year was recorded 100-170 cm. while temperature between 20°C-38 °C. During winter, temperature was 10°C-25°C

The college was established in the year 1970 at by the collective efforts of the people of the locality who wanted higher education to come to their door steps.

This college is the 2nd largest college of the district upholds the purpose for which it was founded away back in the late sixties. This college is affiliated to Utkal university which is the premier university of Odisha provides the scope to the students to

pursue their dreams and become successful in life .This college offers higher secondary and undergraduate course in Science, Commerce and Arts. As per the National assessment and accreditation council it holds 'B' grade.

This college has excellent infrastructure, security and facilities. College provide us sports , cultural activities and everything .This college is known for its educational facilities like smart class rooms ,seminar hall ,advance lab , library etc.

In this local area, farmers are using chemical Fertilizer which is affecting useful organism and decreasing soil texture and overall soil quality of field. So we 15 students of our department decide to make a project on vermicompost under the guidance of Dr. Anjali Kumari Dash (HOD of Botany department) and to promote bio fertilizer in local areas for both commercial and environmental benefits. Apart from this in our college canteen and hostel vegetable and food wastes are available. Cow dung is easily available in local areas and all other requirements are easily available so it brings our attraction towards this project.

The vermicompost is a word which is used for the final product (humus-like material) of composting procedure of organic waste materials by earthworms. Many organic wastes have been converted into worm manure (vermicompost) by different

species of earthworms which include cow manure, leaves, paper waste, sheep-goat manure, rice waste, vegetable waste. Vermicomposting process employing earthworms is increasingly being used for conversion of both municipal and industrial wastes to vermicast with reduced metals content. Vermicompost is described as a perfect soil amendment and more eco-friendly as compared to chemical fertilizers.

Compositing is one of the feasible means for converting biodegradable solid wastes into beneficial organic soil amendments for supporting environment friendly agricultural production system. Many beneficial organisms and microorganisms act as chemical decomposer in the process of formation of stable organic end product during compositing. Among them, decomposers like earthworm play significant role in stimulating the process of compositing. It enhances the nutrient value while fastening the process of stable organic end-product formation. This process of involvement of earthworms in preparing enriched compost is called vermicomposting. It is one of the simplest methods to recycle agricultural wastes and to produce quality compost. Earthworm acts physically an aerator, crusher, and mixer, chemically a degrader and a biological stimulator in the process of decomposition. Earthworms consume biomass and excrete it in

a digest form called as worms cast or worm manure .worm casts are popularly called as black gold .They are rich in essential plant nutrients ,plant growth promoting substances ,beneficial soil micro flora and having properties of inhibiting pathogenic microbes . As a results , the organic end products produced by the use of earthworms i.e vermicompost also inherits most of the beneficial properties of black gold .Vermicompost acts as an organic soil amendment improves three dimensional soil health i.e physical ,chemical and biological properties. The earthworm's underground burrows modify soil hydro-thermal and aeration regimes by making the soil more porous thus allowing free movement of air infiltration of water into deeper soil layers for better profile moisture recharge and root water uptake processes .Vermicompost is becoming popular as one the major component of the organic farming system because of its high nutritive value in addition to an important organic soil amendment.

Vermicompost contains earthworm cocoons and increases the population and activity of earthworm in the soil .It is free form pathogens, toxic element, weed seed etc. It minimizes the incidence of pests and diseases .It enhances the decomposition of organic matter in the soil. It contains valuable

vitamins, enzymes, and hormones like auxin, gibberellins, etc. It does not have foul odour unlike manures and decaying organic wastes.

General waste management strategies for organic residues ,such as composting and vermicomposting have been implemented in some developed and developing countries to solve the problem of organic wastes .

Vermicomposting can produce high quality fertilizers which are better as compared to other commercial fertilizers in the market so every farmers need to use vermicompost instead of other chemical fertilizer.

It can be made into a livelihood program and become a source of extra income through selling the vermicompost and also the vermi worms. its use can reduce the economic cost and leads to organic products which fetches higher price in the market .

REVIEW OF LITERATURE

1. Michigan biology teacher Mary Arlene Appelhof arrived at idea of home vermicomposting .In 1972 she realized she wanted to continue composting in winter month despite living in a Northern climate. Her book 'Worms Eat My Garbage' is still held as seminal reading in the field of vermicomposting.
2. Sultan Ahmed Ismail (born on 9 Oct 1951) is an Indian soil biologist and ecologist .His work has centered on technique for regulating biodegradable wastes into fertilizer using local varieties of earthworm and soil bioremediation.
3. Choudhary and Suresh Kumar (2013)showed that application of vermicompost can increase the production of potential of cow pea (*Vigna unguiculata*)in acid soil by improving water retention at field capacity ,permanent wilting point ,bulk density ,and availability of nitrogen ,phosphorous, and potassium there by increasing growth and yield attributes of cow pea.
4. Rekha et al. (2018)recorded that *C. annum* treated with 50% vermicompost showed significant growth than the plant growth enhances viz. Gibberllic acid and indole

acetic acid treated plants. Significant improvement in all the parameters like length of shoots, length of internodes, number of leaves and number of branches was observed in plants at the end of 3rd, 4th, and 5th weeks of treatment. The findings clearly indicate that vermicompost can be exploited as a potential biofertilizer.

5. Manivannan et al. (2009) found that application of vermicompost @5 tonnes/ha gave significantly higher result than the application of inorganic fertilizers @20:80:40 kg ha⁻¹ in French bean (*Phaseolus vulgaris*) in terms of growth, yield (1.6 times) and quality (protein, 1.05 times) and sugar (1.01 times) content in seed of bean. Vermicompost application also improve the physical, chemical and biological properties of clay loam and sandy loam soils of Sivapuri, Chidambaram, Tamilnadu .
6. Rajkhowa and his coworker (2017) reported that integrated use 50% RDF+ VC 2.5 ha⁻¹ , +lime 4 q ha⁻¹ , under the hilly ecosystem of NE India , resulted in significantly higher yield of green gram (10 q ha⁻¹) and improved the soil organic carbon (2.5%), bacteria and fungi population and available N, P₂O₅ and K₂O compared to the sole application of recommended dose of fertilizer.

Materials and Methodology

Materials:

- Water
- Cow dung
- Soil or sand
- Earth worm
- Kitchen wastages(college hostel)
- Dry leaves from field
- A large concrete bin
- Gunny bags
- Dry straw from paddy fields

Methodology:

1. To prepared compost a concrete tank was used.
2. The size of tank depends upon the availability of raw materials.
3. The collected biomass was placed under concrete tank. Under the sunlight for about 8-12 days.
4. Then cow dung was prepared for quick decomposition.
5. 2-3 inch layer soil or sand was added at the bottom of concrete tank.

6. Then fine bedding was prepared by adding decomposed cow dung and leaves the wastes collected from the hostel kitchen. They are distributed on the sand layer.
7. These materials were added in to the tank up to a depth 0.5-1.0 fit.
8. After adding the all bio wastage earthworm species were released over the mixture and the compost was covered with dry straw and gunny bags.
9. Water was sprinkled to maintain moisture.
The tank to prevent the entry of ants, lizards, mouse, snakes etc.
10. The compost was protected from rainwater and direct sunlight.
11. The compost was checked frequently to avoid from over heating and proper moisture and temperature was maintained.
12. We taken the 3 species of plant *Kalanchoe Pinnata*, *Tagetes patula* and *Andrographis paniculata*
13. Two plants from each three species was planted, one is with vermicompost and another was without vermicompost.

14. The growth of plants was checked frequently.

Five phages of vermicomposting

1. Collection of waste material.
2. Pre – digestion.
3. Earth worm pit preparation and compositing
4. Harvesting of vermicompost and Earthworm.
5. Packing and storing of vermicompost.

We used some precautions in the process of making vermicompost .

1. The collected waste materials was processed for shredding, mechanical separation, of the metal, glass, and ceramics and it should be stored in proper places.
2. Pre-digestion of organic waste was done at least 20-25 days by heaping the material along with cow dung slurry and regular watering. This process partially digests the material and fit for earthworm consumption. Addition of higher quantities of acid rich substances such as citrus wastes was avoided.

3. The vermicompost heap was not overloaded, in order to avoid high temperature that adversely affects earthworm's population.
4. Organic materials free from stones, glass pipes, plastics, ceramic tube etc. was used.
5. Temperature was maintained at 30^C by upturning and staking and regular sprinkling of water.
6. Moisture was maintained at about 60% by proper drainage and aeration and by sprinkling of water.
7. The pit should be a bit inclined towards the hole at the bottom of the pit or tube to drain out the excess water. Make sure to have a drainage channel around the heap to avoid stagnation of water.
8. The compost material was turned upside down giving some days gap without disturbing the basal layer.
9. The organic materials were protected from pests and diseases.
10. The earthworms were protected from predators like ants, birds and lizards.
11. A thatched roof was provided to protect the vermicomposting unit from direct sunlight and rain.

RESULT and DISCUSSION:

1. After the 24 days, around 4000-5000 new worms were generated and the entire raw materials was turned into the vermicompost.
2. When this vermicompost was applied to plants, it promoted the growth of stem and root .
3. The plant to which vermicompost was applied was healthier than the other one.
4. It helps to increase the soil texture and overall soil quality.
5. When vermicompost was applied to one plant of each species, then the growth in stem length was observed.
6. The observation is shown below in the table:

SL NO.	Name of the plants	Without vermicompost	With vermicompost
1	<i>Kalanchoe pinnata</i>	16 cm.	19.5 cm.
2	<i>Tagetes patula</i>	18 cm.	24.2 cm.
3	<i>Andrographis paniculata</i>	11 cm.	14 cm.

On the basis of experiment , We concluded that vermicompost increases the fertility and water holding capacity of the soil.

which helps in better plant growth , germination and crop yield.

It is an environment friendly way of reducing wastes , producing fertilizers and maintaining the balance of ecological environment .Farmers can take up vermicompost production which is a good source of macro and micro nutrients ,also several enzymes and growth regulators ,above all it will also maintain soil organic matter .

RECOMMENDATION

Vermiculture is a way of composting using earthworms to speed up the process. We in the group have engaged ourselves in our unique way of innovative vermiculture and vermicomposting activity for almost 3 months .From that span of time , we recommend that , vermicomposting can produce high quality fertilizers which are better compared to other commercial fertilizers in the market so every farmers need to use vermicompost instead of harmful chemical fertilizers . It can be made into a livelihood program and become a source of extra income through selling the vermicast and also the vermiworms . It's use can reduce the economic cost and leads to organic products which fetches higher price in the market.



PROJECT ON "EARTHWORM PROJECT FOR SUSTAINABLE AGRICULTURE"

DEPARTMENT OF BOTANY

PATTAMUNDAI COLLEGE, PATTAMUNDAI, KENDRAPARA

SL. No	Name of Student	Roll No	Signature
1	Piyanshu Das	BS(B)-19-022	P.D.
2	Bikasini Nanda & Sukani Priyanka	BS(B) 19-023	B. Kumar
3	Manisha Routray.	BS(B) 19-028	M. Routray.
4	Rashmi Parida	BS(B) 19- 026 ⁰²⁹	R. Parida
5	Monaj Kumar Swain	BS(B) 19-046	Monaj Ku. Swain
6	Satyajit Rout	BS(B) 19-049	S. Rout
7	Priyanka Priyadarshini Swain	BS(B) 19-057	P. Swain
8	Aswarya Nandini Pradhan	BS(B)-19-085	A. N Pradhan
9	Pratimayee Moha	BS(B) 19-071	P. Moha
10	Rishabhika Behera	BS(B) 19-098	R. Behera
11	Sonali deepa Nayak	BS(B) 19-106	S. Nayak
12	Gayatri Jena	BS(B)-19-091	G. Jena
13	Prabir Das	BS(B) 19-040	P. Das
14	Sonali Priyadarshini Paida	BS(B)-19-122	Sonali
15	Sushree Suchitra Das	BS(B)-19-112	S. Das

Arijati Kumar Das
Signature of Supervisor





PROJECT REPORT ON
IMPACT OF PANDEMIC COVID-19 ON EDUCATION IN INDIA

PREPARED BY
DEPARTMENT OF ECONOMICS



PATTAMUNDAI COLLEGE
PATTAMUNDAI, KENDRAPARA
ODISHA- 754215

SESSION-2021-22

REPORT

A project on "Impact of pandemic Covid-19 on Education in India" was undertaken by student of Economics department during the month of March in 2022. 12 no of students participated in the project work. The study has relied upon only secondary data. Data and information presented in current study were collected from various report prepared by national and international agencies on COVID-19 pandemic. Some journals and e-contents relating to impact of COVID-19 on educational system were referred. The project work was supervised by Mr. Subhasis Mishra, Lecturer in Economics. After completion of the project students presented their report before the external and internal examiner.

Subhasis Mishra
Signature of Supervisor
12.05.22

Pradyumna Pradhan
Signature of HOD
12.5.22
H O D ECONOMICS
PATTAMUNDAI COLLEGE

P. D. S.
12.5.22
Principal
Pattamundai college
Principal
Pattamundai College

CONTENTS

SL NO	CONTENT	PAGE NO
1	Introduction	1
2	Objectives	2
3	Data and Methodology	2
4	Initiatives of Govt. of India on Education during Covid-19	3
5	Secondary Education	4
6	Higher Education	5
7	Positive impact of Covid-19 on Education	6
8	Negative impact of Covid-19 on Education	7
9	Suggestion	9
10	Conclusion	10
11	References	11

IMPACT OF PANDEMIC COVID-19 ON EDUCATION IN INDIA

INTRODUCTION

The pandemic Covid-19 has spread over whole world and compelled the human society to maintain social distancing. It has significantly disrupted the education sector which is a critical determinant of a country's economic future. On February 11, 2020, the world Health Organisation (WHO) proposed an official name of the virus as COVID-19, an acronym for Corona virus disease 2019. It was first identified in Wuhan, China on December 31, 2019. First death by COVID-19 was the 61-year old man in Wuhan, China on January 11, 2020. WHO declared Covid-19 as a pandemic on March 11, 2020. The first case of the COVID-19 pandemic in India was reported on 30 January 2020 in the state of Kerala and the affected had a travel history from Wuhan, China (Wikipedia). The first death due to COVID-19 was reported in India on March 12, 2020. It has affected more than 4.5 million peoples worldwide (WHO). According to the UNESCO report, it had affected more than 90% of total world's students population during mid April 2020 which is now reduced to nearly 67% during June 2020. Outbreak of COVID-19 has impacted more than 120 crores of students and youths across the planet. In India, more than 32 crores of students have been affected by the various restrictions and the nationwide lockdown for COVID-19. As per the UNESCO report, about 14 crores of primary and 13 crores of secondary students are affected which are two mostly affected levels in India. After observing the corona virus pandemic situation the WHO advised to maintain social distancing as the first prevention step. So, every country started the action of lockdown to separate the contaminated people. The education sectors including schools, colleges and universities became closed. Classes suspended and all examinations of schools, colleges and universities including entrance test were postponed indefinitely. Thus, the lockdown destroyed the schedules of every student. Though it is an exceptional situation in the history of education, COVID-19 has created many opportunity to come out of the rigorous classroom teaching model to a new era of digital model.

The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter all realized the lockdown has taught so many lessons to manage with the emergence of such pandemics. Thus, COVID-19 has created many

challenges and opportunities for the educational institutes to strengthen their technological knowledge and infrastructure . The lockdown has given them a ray of hope for teachers and students to continue their educational activities through online. The teachers assigned work to student via internet, delivered lectures through live video conferencing using different Apps like Zoom, Google meet, Face book, YouTube and Skype etc. There are Whats App groups of guardians, teachers, students and parents for affecting communication through which they are always in touch to chare their difficulties through this e-medium. In a nation like China that practices a considerably more centralization system, a change to digital learning may be simpler. Even in a nation like the U.S.A there are some low pay students who don't approach broad bands and unable to use computerized learning arrangement . The same is the situation that happens with India where not every student is well equipped with the high-speed internet and digital gadgets and are along these lines of suffer. Numerous advanced educational institutions in India are not also equipped with digital facilities right now to cope u with sudden change from traditional education set up to the online education system.

OBEJECTIVES:

The present project paper focused on the following objectives.

- To enlighten various measures taken by Govt. Of India for education sector during this pandemic.
- To highlight various positive impact of COVID-19 on education.
- To enlist some negative impacts of COVID-19 and to put some effective suggestions for continuing education during the pandemic situation.

METHODOLOGY

Data and information presented in current study are collected from various report prepared by national and international agencies on COVID-19 pandemic. Information are collected from various authentic websites. Some journals and e-contents relating to impact of COVID-19 on educational systemare referred.

INITIATIVES OF GOVT. OF INDIA ON EDUCATION DURING COVID- 19 :

To prevent spread of pandemic COVID-19, the Government of India has taken number of preventive measures. The union government declared a countrywide lock-down of all educational institutions on 16 March 2020. Central Board of Secondary Education (CBSE) postponed all examinations of secondary and higher secondary schools on March 18, 2020 throughout India. CBSE released guideline for examination centres to conduct examinations by maintaining a distance of at least 1 meter between the students taking the exam with a class not having more than 24 students. If the rooms of the examination centres are small then the students should be divided into different rooms accordingly. The Union Public Service Commission (UPSC) postponed the interview for the Civil services Examination 2019. Similarly the most of the state Governments and other educational boards postponedexaminations due to outbreak of COVID-19. Govt. Of India has observed one day nationwide Janta-curfew on March 22 and implement lockdown from March 25, 2020 onwards in different phases. Govt. Of India has been extending lockdown periods from time to time adopting different strategies to fight with the pandemic but educational institutions remained closed continuously. The lockdown 6.0 was declared on June 29, which is effective from 1st July to 31st July 2020 with some less restriction in other sectors except education. Almost all state government ministers have taken measures to ensure that the academic activities of schools and colleges do not hamper during the lockdown period. They have instructed the schools to hold all their classes online. The lockdown has accelerated adoption of digital technology. It has provided a chance to develop new and improved professional skills/knowledge through online learning in more efficient and productive way. Online learning is the best solution during this pandemic Covid-19 situation. So, the digital India vision of the government is emerging as a vital tool for solving the present crisis due to Covid-19. It is a fact that technology-based education is more transparent with all respect. Looking at this challenge of colleges and schools being shut, government of India, as well as state governments and private players have undertaken proper initiatives. The Ministry of Human Resource Development (MHRD) has made several arrangements, including online portals and educational channels through Direct to Homes TV, Radios for students to continue learning. During lockdown, students are using popular social media tools like Whats App, Zoom, Google Meet, Telegram, YouTube live, ICT initiative of MHRD is a unique platform which combines all initiatives of MHRD for secondary as well as higher education during COVID-19 are listed as below:

SECONDARY EDUCATION

- **Diksha** portal contain e-Learning content for students, teachers and parents aligned to the curriculum, including video lessons, worksheets, textbooks and assessments. Under the guidance of its national boards of education (CBSE) and NCERT, the content has been created by more than 250 teachers who teach in multiple languages. The app is available to use offline. It has more than 80,000 e-Book for classes 1 to 12 created by CBSE, NCERT in multiple languages. The contents can also be viewed through QR codes on textbooks. The app can be downloaded from IOS and Google Play store. Website: <https://diksha.gov.in> or <https://seshaqun.gov.in/shaqun>
- **E-Pathshala** is an e-Learning app by NCERT for classes 1 to 12 in multiple languages. The app houses books, videos, audios, etc. aimed at students, educators and parents in multiple languages including Hindi, Urdu and English. In this web portal NCERT has deployed 1886 audios, 2000 videos, 696 e-Books and 504 Flip Books for classes 1 to 12 in different languages. Mobile Apps is available. Website : <https://epathshala.nic.in> or <https://epathshala.gov.in>
- **National Repository of Open Educational Resources (NROER)** Portal provides a host of resources for students and teachers in multiple languages including books, interactive modules and videos including a host of STEM-based games. Content is mapped to the curriculum for classes 1-12 including aligned resources for teachers. It has a total of 14527 files including 401 collections, 2799 documents, 1345 interactive, 1664 audio, 2586 images and 6153 videos on different languages. Website: <https://nroer.gov.in/welcome>

HIGHER EDUCATION

- **Swayam** is the national online education platform hosting 1900 courses covering both school(classes 9 to 12) and higher education (under graduate, Post graduate programs) in all subjects including engineering, humanities and social sciences, law and management courses. The unique feature is that, it is integrated with the conventional education. Credit transfers are possible for SWAYAM courses. Website : <https://swayam.gov.in/>
- **Swayam Prabha** has 32 DTH TV channels transmitting educational contents on 24X7 basis. These channels are available for viewing all across the country using DD Free Dish Set Top Box and Antenna. The channel schedule and other details are available in the portal. The channels cover both school education(class9 to 12) and higher education (undergraduate, post graduate, engineering out of school children, vocational courses and teacher training) in arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine agriculture, website: <https://swayamprabha.gov.in>
- **E-PG Pathshala** is for postgraduate students. Postgraduate students can access this platform for e-books, online courses and study materials during this lockdown period. The importance of this platform is that students can access these facilities without having internet for the whole day. Website: <https://eqgp.inflibnet.in/>

POSITIVE IMPACT OF COVID-19 ON EDUCATION

Though the outbreak of COVID-19 has created many negative impacts on education, educational institutions of India have accepted the challenges and trying their best to provide seamless support services to the students during the pandemic. Indian education system to a new era. The following points may be considered as the positive impact.

- **MOVE TOWARDS BLENDED LEARNING** : COVID-19 has accelerated adoption of digital technologies to deliver education. Educational institutions moves towards blended mode of learning. It encouraged all teachers and students to become more technology savvy. New ways of delivery and assessments of learning opened immense opportunities for a major transformation in the area of curriculum development and pedagogy. It also gives access to large pools of learners at a time.
- **RISE IN USE OF LEARNING MANAGEMENT SYSTEMS**: Use of learning management systems by educational institutions became a great demand. It opened a great opportunity for the companies those have been developing and strengthening learning management systems for use educational institutions.
- **ENHANCE THE USE OF SOFT COPY OF LEARNING MATERIAL** : In lockdown situation students were not able to collect the hard copies of study materials and hence most of the students used of soft copies materials for reference.
- **IMPROVEMENT IN COLLABORATIVE WORK** : There is a new opportunity where collaborative teaching and learning can take on new forms. Collaborations can also happen among faculty/teachers across the worlds to benefit from each other.
- **RISE IN ONLINE MEETINGS** – The pandemic has created a massive rise in teleconferencing, virtual meetings, webinars and e-conferencing opportunities.
- **ENHANCED DIGITAL LITERACY**: The pandemic situation induced people to learn and use digital technology and resulted in increasing the digital literacy.
- **IMPROVED THE USE OF ELECTRONIC MEDIA FOR SHARING INFORMATION** : Learning materials are shared among the students easily and the related queries are resolved through e-mail, SMS, phone calls and using different social Medias like Whats App or Face book.
- **WORLD WIDE EXPOSURE**: Educators and learners are getting opportunities to interact with peers from around the world. Learners adapted to an international community.

- **BETTER TIME MANAGEMENT:** Students are able to manage their time more efficiently in online education during pandemics.
- **DEMAND FOR OPEN AND DISTANCE LEARNING (ODL) :** During the pandemic situation most of the students preferred ODL mode as it encourages self-learning providing opportunities to learn from diverse resources and customized learning as per their needs.

NEGATIVE IMPACT OF COVID-19 ON EDUCATION

Education sector has suffered a lot due to the outbreak of COVID-19. It has created many negative impacts on education and some of them are as pointed below.

- **EDUCATIONAL ACTIVITY HAMPERED :** Classes have been suspended and exams at different levels postponed. Different boards have already postponed the annual examinations and entrance tests. Admission process got delayed. Due to continuity in lockdown, student suffered a loss of nearly 3 months of the full academic year of 2020-21 which is going to further deteriorate the situation of continuity in education and the as students would face much difficulty in resuming schooling again after a huge gap.
- **IMPACT ON EMPLOYMENT**
Most of the recruitment got postponed due to COVID-19 Placements for students may also be affected with companies delaying the on board of students. Unemployment rate is expected to be increased due to this pandemic. In India, there is no recruitment in govt. Sector and fresh graduates fear withdrawal of their job offers from private sectors because of the current situation. The centre for monitoring Indian Economy's estimates on unemployment shot up from 8.4% in mid march to 23% in early April and the urban unemployment rate to 30.9% (Educationasia.in). When the unemployment increases then the education gradually decreases as people struggle for food rather than education.
- **UNPREPARED TEACHERS/STUDENTS FOR ONLINE EDUCATION:-**
Not all teachers/students are good at it or at least not all of them were ready for the sudden transaction from face to face learning to online learning. Most of the teachers

are just conducting lectures on video platforms such as Zoom, Google meet etc. which may not be real online learning without any dedicated online learning platforms.

- **REDUCED GLOBAL EMPLOYEMENT OPPORTUNITY:-**

Some may lose their jobs from other countries and the pass out students may not get their job outside India due to restrictions caused by COVID- 19. Many Indians might have returned home after losing their jobs overseas due to COVID-19. Hence, the fresh students who are likely to enter the job market shortly may face difficulty in getting suitable employment. Many students who have already got jobs through campus interviews may not be able to join their jobs due to lockdown. The Indians who have been doing their abroad may lose their jobs. Recent graduates in India are of also fearing for withdrawal of job offers from corporate sectors because of movement restriction in current pandemic situation.

- **INCREASED RESPONSIBILITY OF PARENTS TO EDUCATE THEIR WARDS:** Some educated parents are able to guide but some may not have adequate level of education needed to teach children in the house.

- **LOSS OF NUTRITION DUE TO SCHOOL CLOSURE**

Mid day meals is a school meal programme of government of India which is designed to provide better the nutritional food to school-age children nationwide. The closure of schools has serious implications on the daily nutrition of students as the mid-day meal schemes have temporarily been shut. Various studies have pointed out that mid-day meals are also an important contributing factor for increased enrolment in the schools.

- **ACCESS TO DIGITAL WORLD:** As many students have limited or no internet access and many students may not be able to afford computer, laptop or supporting mobile phones in their homes. Online teaching- learning may create a digital divide among students. The lockdown has hit the poor students very hard in India as most of them are unable to explore online learning according to various reports. Thus the online teaching-learning method during pandemic COVID-19 may enhance the gap between rich/poor and urban/rural.

- **ACCESS TO GLOBAL EDUCATION :** The pandemic has significantly disrupted the higher education sector. A large number of Indian students who are enrolled in many Universities abroad, especially in worst affected countries are now leaving those countries and if the situation persists, in the long run, there will be a

significant decline in the demand for international higher education.

- **PAYMENT OF SCHOOLS, COLLEGES FEE GOT DELAYED:** During this lockdown most of the parents will be facing the unemployment situation so they may not be able to pay the fee for that particular time periods which may affect the private institutes.

SUGGESTION

- India should develop creative strategies to ensure that all children must have sustainable access to learning during pandemic COVID-19. The Indian policies must include various individuals from diverse backgrounds including remote regions, marginalised and minority groups for effective delivery.
- Immediate measures are required to lessen the effects of the pandemic in job offers, internship programmes and research projects.
- Many online learning platforms offer multiple programmes on the same subjects with different levels of certifications, methodology and assessment parameters. So, the quality of programmes may differ across different online learning platforms. Therefore, establishment of quality assurance mechanisms and quality benchmark for online learning programmes must be developed and offered by Higher Education Institutions (HEIs) in India keeping in view of rapid growth of the online learning platforms.
- Across the globe, India traditional knowledge is well known for its scientific innovations, values and benefits to develop sustainable technologies and medicines and this knowledge systems in different fields should be integrated with a present-day mainstream higher education system.
- Govt and educational institutions should plan to continue the educational activities maintaining social distancing. 30-40% students and teachers may attend schools/colleges in two shifts per day to carry on educational activities by obeying guidelines for COVID-19.
- At current times, access to technology and internet is an urgent requirement. So, the digital capabilities and the required infrastructure must reach to the remotest and poorest communities to facilitate the students to continue their education during the pandemics. There is a need to deploy public funds to fix the internet gap and ensure

that students continue to learn digitally. The state governments/private organisations should come up with ideas to address this issue of digital education.

- Some significant issues associated with distance learning strategies like the availability and access to digital devices with internet connectivity, the need for safe learning spaces, creating capabilities for teachers, families and students to operate and navigate digital devices and engaging lesson plans for disabled students and other marginalised groups should be addressed by Govt. And the stakeholders.

CONSLUSION

COVID-19 has impacted immensely to the education sector of India. Though it has created many challenges, various opportunities are also evolved. The Indian Govt. And different stakeholders of education have explored the possibility of Open and distance learning (ODL) by adopting different digital technologies to cope up with the present crisis of COVID-19. India is not fully equipped to make education reach all corners of the nation via digital platforms. The students who aren't privileged like the others will suffer due to the present choice of digital platforms. But universities and the government of India are relentlessly trying to come up with a solution to resolve this problem. The priority should be to utilize digital technology to create an advantageous position for millions of young students in India. It is need of the hour for the educational institutions to strengthen their knowledge and Information Technology infrastructure to be ready for facing COVID-19 like situations.

Even if the COVID- 19 crises stretches longer, there is an urgent need to take efforts on maximum utilization of onlne platforms so that students not only complete their degree in this academic year but also to get ready for the future digital oriented environment. The concept of "work from home" has greater relevance in such pandemic situation to reduce spread of COVID-19. India should develop creative strategies to ensure that all children must have sustainable access to learning during pandemic COVID-19. The Indian policies must including remote regions, marginalised and minority groups for effective delivery of education. As online practice is benefitting the students immensely, is should be continued after the lockdown. Further detailed statistical study may be undertaken to explore the impact of COVID-19 on education system of India.

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PROJECT REPORT ON " IMPACT OF PANDEMIC COVID-19 ON
EDUCATION IN INDIA"

DEPARTMENT OF ECONOMICS

PATTAMUNDAI COLLEGE, PATTAMUNDAI

SESSION 2021-22

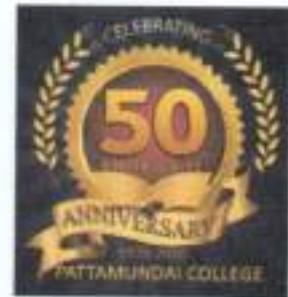
ATTENDANCE SHEET OF STUDENTS

SL. NO.	NAME OF THE STUDENT	ROLL NO.	SIGNATURE
1	Anil kumar malik	BA-19-206	Anil kumar malik
2	Bijayalaxmi Sandha	BA-19-174	Bijayalaxmi Sandha
3	Bimal kumar Jena	BA-19-198	Bimal kumar Jena
4	Krishna Nayak	BA-19-185	Krishna Nayak
5	Laxmi preya Rout	BA-19-030	Laxmi preya Rout
6	Lipsa sahoo	BA19-068	Lipsa sahoo
7	Madhusmita Sethi	BA19-244	Madhusmita Sethi
8	Preetinibedita Pradhan	BA 19-028	Preetinibedita Pradhan
9	Priyadarshini Nayak	BA-19-176	Priyadarshini Nayak
10	Prasanna Nayak	BA-19-181	Prasanna Nayak
11	Saroj Pradhan	BA-19-250	Saroj Pradhan
12	Kuldeep Dash	BA-19-042	Kuldeep Dash

Subhasis Mishra
12.05.22

PATTAMUNDAI COLLEGE
PATTAMUNDAI

DEPARTMENT OF PHYSICS



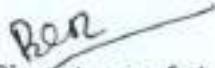
PROJECT
ON
"RADAR"

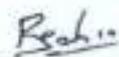
PREPARED BY 3RD YEAR STUDENTS

AND

SUPERVISED BY -: Baikunth Charan Roul

March-2022


Signature of the
Supervisor


signature of
H.O.D. Physics

REPORT

A project on "RADAR" was prepared by students of Department of Physics during the month of March 2022. Two members of student participated in the project work. They collected several materials on the concerned topic from different Libraries and other studious Places. The department faculties co-operated them in all these works and this project is original.

Resh...
H.O.D. Physics
Pattamundai College

H. O. D. Physics
Pattamundai College

[Signature]
Principal
Pattamundai College

PROJECT ON : RADAR

DEPARTMENT OF PHYSICS,

PATTAMUNDAI COLLEGE, PATTAMUNDAI.

SESSION 2021-2022

ATTENDANCE SHEET

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CONTENTS

1. INTRODUCTION
2. PRINCIPLE OR METHAODOLOGY
3. ARCHITECTURE OF PROJECT
4. WORKING
5. CODE
6. ADVANTAGES
7. CONCLUSIONS
8. REFERENCES

INTRODUCTION

Radar is an object detection system which uses radio waves to determine the range, altitude, direction, or speed of objects. It can be used to detect aircraft, ships, spacecraft, guided missiles, motor vehicles, weather formations, and terrain. The radar dish or antenna transmits pulses of radio waves or micro waves which bounce off any object in their path. The object returns a tiny part of the wave's energy to a dish or antenna which is usually located at the same site as the transmitter.

The modern uses of radar are highly diverse, including air traffic control, radar astronomy, air-defence systems, antimissile systems; marine radar start locate landmarks and other ships; aircraft anti collision systems; ocean surveillance system, outer space surveillance and rendezvous system; meteorological precipitation monitoring; altimetry and flight control systems; guided missile target locating systems; and ground penetrating radar for geological observations. High tech radar systems are associated with digital signal processing and are capable of extracting useful information from very high noise levels. The Arduino based project requires a ultrasonic sensor, the sensor released the waves which we want to measure the distance of a object. The microcontrollers of the Arduino board can be programmed using C and C++ languages. When a code is written in Arduino UNO IDE software and connected to the board through a USB cable, Arduino boards have lot of applications in the present day scenario, so we have decided to do small project on them.

An Arduino is actually a microcontroller based kit which can be either used directly by purchasing from the vendor or can be made at home using the components, owing to its open source hardware feature. It is basically used in communications and in controlling or operating many devices.

1. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs – light on a sensor, a finger on a button, or a twitter message- and turn it into an output – activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on wiring), and the Arduino software (IDE), based on processing.
2. Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers – students, hobbyists, artists, programmers, and professionals – has gathered around this open-source platform, their contribution have added up to an incredible amount of accessible knowledge that can be of great help of novices and experts alike.
3. Arduino was born at the Ivrea interaction design institute as an easy tool for fast proto typing aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for lot applications, wearable, 3D printing, and embedded environments. All Arduino boards are completely

open- source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is opensource, and it is growing through the contribution of users worldwide.

The Arduino tool window consists of the toolbar with the buttons like verify, upload, new open, save, serial monitor. It also consists of a text editor to write the code, a message area which displays the feedback like showing the errors, the text console which displays the output and a series of menu like the file, Edit, Tools menu. Thus the code is uploaded by the bootloader onto the microcontroller.

- **ULTRASONIC SENSOR**

As the name indicates, ultrasonic sensors measure distance by using ultrasonic waves. The sensor head emits an ultrasonic wave and receives the wave reflected back from the target. Ultrasonic sensor measure the distance to the target by measuring the time between the emission and reception. An optical sensor has a transmitted and receivers, whereas an ultrasonic sensor uses a single ultrasonic element for both emission and reception. In a reflective mode ultrasonic sensor, a single oscillator emits and receives ultrasonic waves alternately. This enables miniaturization of the sensor head.

Distant calculation

The distance can be calculated with the following formula:

Distance $L = 1/2 * T * C$

Where L is the distance, T is the time between the emission and reception, and C is the sonic speed. (The value is multiplied by $\frac{1}{2}$ because T is the time for go -and-return distance.) features

The following list shows typical characteristics enabled by the detection system. [Transparent object detectable]

Since ultrasonic waves can reflect off a glass or liquid surface and return to transparent targets can be detected.

[resistant to mist and dirt]

Detection is not affected by accumulation of dust or dirt. [Complex shaped objects detectable]

Presence detection is stable even for targets such as mesh trays or springs.

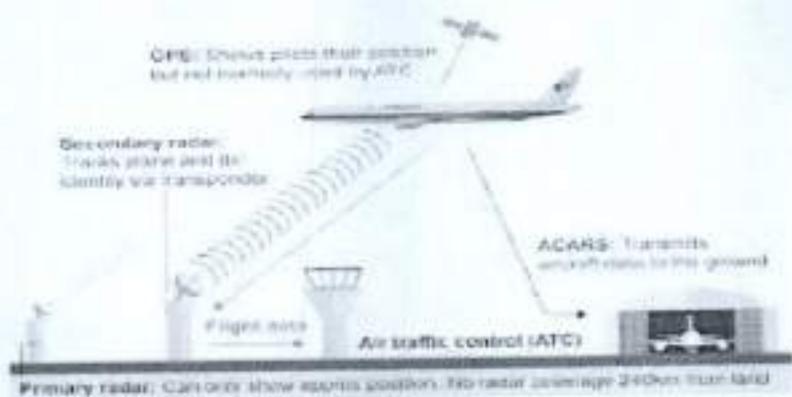
PRINCIPLE OR MEDTHODOLOGY

A radar system has a transmitter that emits radio waves called a radar signals in predetermined direction. When these come into contact with an object they are usually reflected or scattered in many directions Example:-let us take example for bat

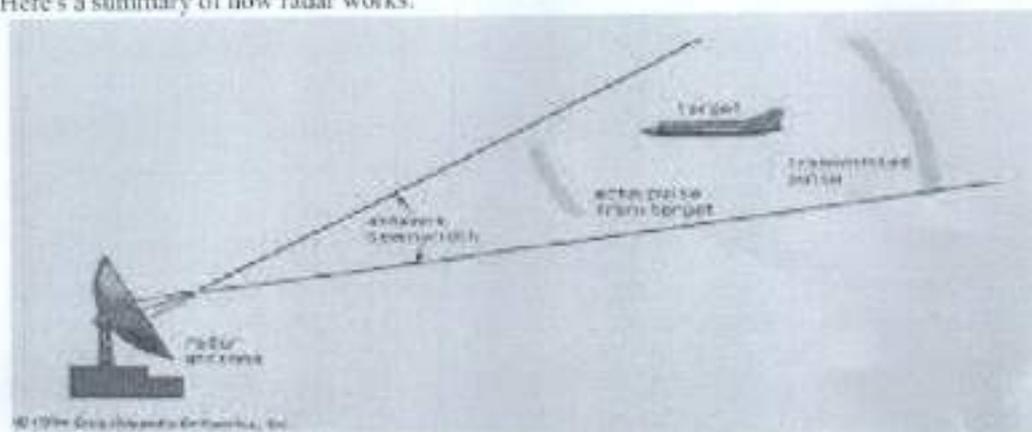
Bat released the eco sound while travelling. If any object came in middle and it reflect back to the bat

Applications and usages:-

The development of the radar technology took place during the world war II in which it is used for detecting the approaching aircraft and then later for many other purposes which finally led to the development of advanced military radars being used this days. Military radars have a highly specialized design to be highly mobile and easily transportable, by air as well as ground. Military radar should be an early warning, altering along with weapon control functions. It is specially designed to be highly mobile and should be such that it can be deployed within minutes.



Here's a summary of how radar works:



- Magnetron generates high - frequency radio waves.
- Duplexer switches magnetron through to antenna.
- Antenna acts as transmitter, sending narrow beam of radio waves through the air.

Radio waves hit enemy airplane and reflect back.

ARCHITECTURE OF PROJECT :-

● PROCEDURE

➤ COMPONENTS REQUIRED:

In this project we have used the Arduino and ultrasonic sensor along with the jumping wires and the relay motors and details list of the hard ware components are

- Arduino board and Arduino cable
- Jumper wires
- Bread board
- Ultrasonic sensor
- Relay motor
- Double side plaster
- Gum gun
- laptop

WORKING

A. MAKING ON ARDUINO BOARD

Since, we believe in learning by doing .so, we decided to make our own Arduino board instead of using the readymade board. so, the steps required to make an Arduino board as follows:

Boot loading an Atmega328 using the Arduino board /AVR programmer by uploading the boot loader to the microcontroller.

Making the connections on a general purpose PCB, connecting the crystal oscillator, capacitors, connectors for the connections to Arduino board etc.

Providing the power supply, usually 5volt Arduino is ready to use.

After you have done all this, then only the minimum circuitry like crystal oscillator, capacitor, connectors, power supply is required to complete the board. The same circuit can be made on the PCB, either designed or general purpose. Since, Arduino is an open source. Hence, it is easy to make and can have any enhancements as per the requirements.

CONNECTING SERVO MOTOR

A servomotor is a rotary actuator that allows for precise control of angular position, velocity and acceleration.

A normal servo motor has three terminals:

1. VCC
2. GND
3. PULSE

A servo motor works at normally 4.8 to 6 volts. Ground is provided by connecting it tom the ground of the Arduino. The total time for a servo motor pulse is usually 20ms. To move it to one end of say 0 degree angle, a 1ms pulse is used and to move it to other end i.e 180

degrees, a 2ms pulse is applied. Hence, according to this to move the axis of the servo motor to the center, a pulse of time 1.5 ms should be applied. For this, the pulse wire of the servo motor is connected to the Arduino that provides the digital pulse for pulse width modulation of the pulse. Hence, by programming for a particular pulse interval the servo motor can be controlled easily.

CONNECTING ULTRASONIC SENSOR

An ultrasonic sensor consists of three wires. One for Vcc, second for ground and the third for pulse signal. The ultrasonic sensor is mounted on the servo motor and both of them further connected to the Arduino board . the ultrasonic sensor uses the reflection principle for its working. When connected to the Arduino, the Arduino provides the pulse signal to the ultrasonic sensor which then sends the ultrasonic wave in forward direction. Hence, whenever there is any obstacle detected or present in front, it reflects the waves which are received by the ultrasonic sensor.

If detected the signal is sent to the Arduino and hence to the PC /laptop to the processing software that shows the presence of the obstacle on the rotating RADAR screen with distance and the angle at which it has been detected.

• USING PROCESSING SOFTWARE

Processing is an open source programming language and integrated development environment (IDE) built for the electronic arts, new media art, and visual design communities with the purpose of teaching the fundamentals of computer programming In a visual context, and to serve as the foundation for electronic sketchbooks. The project was initiated in 2001 by caseyreas and Benjamin fry, both formerly of the Aesthetics and computation group at the MIT media lab. One of the stated aims of processing is to act as a tool to get nonprogrammers started with programming, through the instant

gratification of visual feedback. The language builds on the java language, but uses a simplified syntax and graphics programming models.

- **PROBLEMS FACED**

1. Firstly I used the MAX-232IC to communicate with the Arduino as with the 8051 but due to large voltage drop and mismatch in the speed, it failed to communicate.
2. Next, I tried to use a dedicated AVR as USB to serial converter as in the original Arduino board, the difference being DIAVR used by us instead of the SMD mega16U2 controller.

But, unfortunately I was unable to communicate through it.

3. At last I had no other choice but to use the FTDI FT-232R chip for USB to serial conversion. Finally IT WORKED!!!

ARDUINO CODE

Includes the servo library #include

```
<servo. h >.
```

```
//defines trig and echo pins of the ultrasonic sensor
```

```
Const int trigpin =10; const int echopin = 11;
```

```
//variables for the duration and the distance
```

```
Long duration; in distance;
```

```
Servo myservo; //creates a servo object for controlling the servo  
motor void setup() {pin mode(trigpin, OUTPUT); //sets the  
trigpin as an output pinmode(echopin, input); //sets the echopin  
as an input serial.being(9600);my servo. attach(12); //defines on  
which pin is the servo motor attached
```

```
} void loop()
```

```
{
```

```
//rotates the servo motor from 15 to 165 degrees
```

```
For(int i=15;i<=165;i++) { my servo. write(i);
```

```
Delay(30);
```

```
Distance= calculate distance();// calls a function for calculating  
the distance measured by the ultrasonic sensor for each degree
```

```
Serial. Print(i);//sends the current degree into the serial port
```

```
Serial.print(" ,");//sends addition character right next to the  
previous value needed later in the processing IDE for indexing
```

```
Serial. Print(distance); //sends the distance value into the serial  
port Seial. Print(","); // sends addition character right next to the  
previous value needed later in the processing IDE for indexing
```

```
}
```

```
//repeats the previous lines from 165 to 15 degrees for(int  
i=165;i>15;i--){ myservo. Write(i);
```

```
Delay(30);
```

```
Distance=calculate distance();
```

```
Serial.print(i);
```

```
Serial.print(","); serial.print(distance);
```

```
Serial. Print(",");
```

```
}
```

```
}
```

```
//function for calculating the distance measured by the ultrasonic  
sensor int calculate distance(){
```

```
Digital write(trigpin, LOW);
```

```
Delay microseconds(2);
```

```
//sets the trigpin on HIGH state for 10 micro seconds
```

```
Digital write(trigpin, HIGH);delay microseconds(10);
```

```
Digital write(trigpin, LOW);
```

```
Duration=pulsein(echopin, HIGH); //reads the echopin, returns  
the sound wave travel time in microsecond distance=  
duration*0.034/2; return distance;
```

```
}
```

ADVANTAGES

1. **The cost effective** :Our project below 1000rs only.
2. **Improved accuracy** : The resistors with low value in milliohms are used in advanced cars with sensitive power steering and break circuits. Now a days these advancements have become the major cause for the severe accidents. Therefore the components used in such circuits must have accurate and precise value for smooth working of such circuits. Ultimately this refers to the accurate testing of the resistors used. Improved accuracy is thus the second primary aim of the sensor .
3. **Reduced hardware complexity** :Hardware complexity is one of the reasons for the high cost of the ultrasonic sensor. The use of Arduino Uno is to reduce the motherboard present in the conventional ohmmeter in Arduino based ultrasonic sensor. The Arduino acts as the central board. Since Arduino are readily available in market it leads to the reduction in the complexity of the design. The automated range selection is also the objective in order to speedup the testing process. This will also reduce the faults in range selection in manually operated conventional sensor.

CONCLUSIONS

This project aims on the use of ultrasonic sensor by connected to the Arduino UNO R3 board and the signal from the sensor further provided to the screen formed on the laptop to measure the presence of any obstacle in front of the sensor as well as determine the range and angle at which the obstacle is detected by the sensor.

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