A Project Report on

Vertical Farming using Aeroponics

Domain
Embedded System

Submitted to
Savitribai Phule Pune University
In Partial Fulfillment of the Requirement for the Award of

BACHELOR'S DEGREE IN
ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Submitted By

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(An Autonomous Institute Affiliated to Savitribai Phule Pune University)

2019-20

Acknowledgement

(You can skip acknowledgement) First and foremost, I would like to extend my sincere gratitude to my advisor ******.****

I would also like to thank **********.

I would like to express my gratitude **********.

Thanks are also due to my colleagues and friends in Vishwakarma Institute of Information Technology **********.

I would like to express my sincere thanks to my beloved family who has been the pillars of strength in all my endeavors.

Last but not least, all this would never have been possible without my faith in god.

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(An Autonomous Institute affiliated to Savitribai Phule Pune University)
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Certificate

This is to certify that project work entitled **"Vertical Farming using Aeroponics"** carried out in the eight semester by,

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in partial fulfillment for the award of Bachelor of Engineering degree in Electronics and Telecommunication Engineering from Vishwakarma Institute of Information Technology, Savitribai Phule Pune University, Pune during the academic year 2019-20.

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Date: MAY 2020
Place: Pune

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Certificate of the Guide

Certified that the work incorporated in the report, **"Vertical Farming using Aeroponics"** submitted by,

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work carried out by the candidate for the Final Year project under my supervision and guidance.

Prof. Pravin G. Gawande
Guide
Vishwakarma Institute of Information Technology,
Pune.

Date: MAY 2020
Place: Pune

Abstract

Abstract should be of 1/2 page or 3/4 page

Contents

List of Tables

List of Figures

Enclosed CD with complete details of projects.

(***Seminar report document, seminar report ppt, Project report and ppt, design layouts, PCB layouts, program simulations, working videos, data-sheets)***

Chapter 1

Introduction

Approximately half page.
Approximately half page

Approximately half page .

1.1 Literature survey

Approximately 2 pages

1.2 Objectives

Approximately 3 to 4 objectives

- **Objective 1**
- **Objective 2**
- **Objective 3**
- **Objective N**

1.3 Motivation

Approximately 2 pages

1.4 Circuit diagram of ———-

explanation about ckt diagram The understanding of the quality assessment. As represented in the 2.2, these degradation's are one or the other assets of an image .

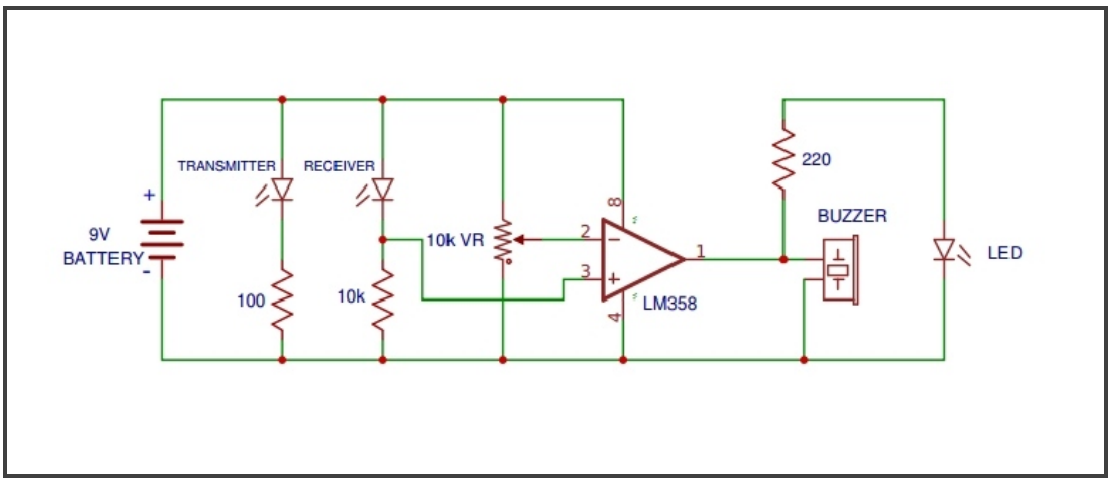

Figure 1.1: Circuit diagram of ——-

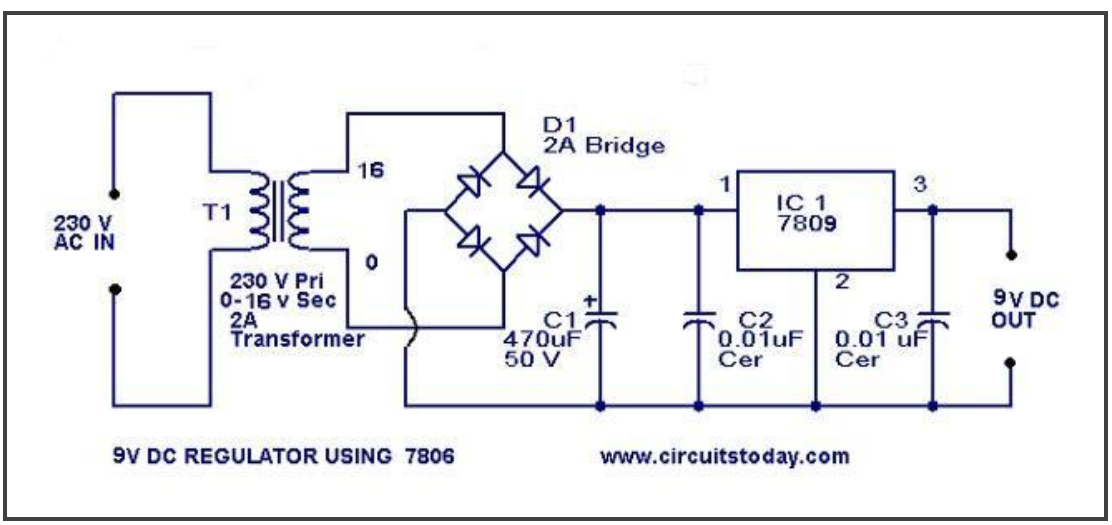

Figure 1.2: Circuit1 diagram of ——-

1.4.1 Working / operation of circuit

The understanding of the quality assessment. As represented in the figure 4.3, these degradation's are one or the other assets of an image .

verification decision [1] [2] [3] [4]

Chapter 2

Block diagram and Design

2.1 Block diagram of ——-

Description about block diagram. don't copy from internet. As represented in the figure 2.1, these degradation's are one or the other assets of an image .

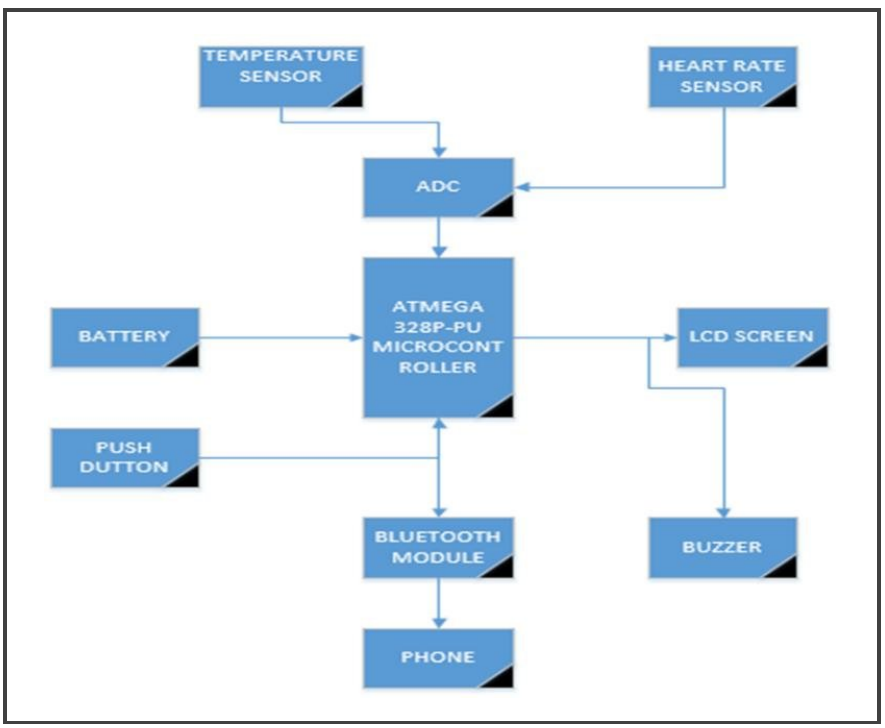

Figure 2.1: block diagram of ——

2.2 Description of Block diagram

Describe each block in brief

Describe each block in brief

2.3 Circuit design

write down design procedure

Don't copy diagra fron internet draw it using tools. as shown in figure 2.2,

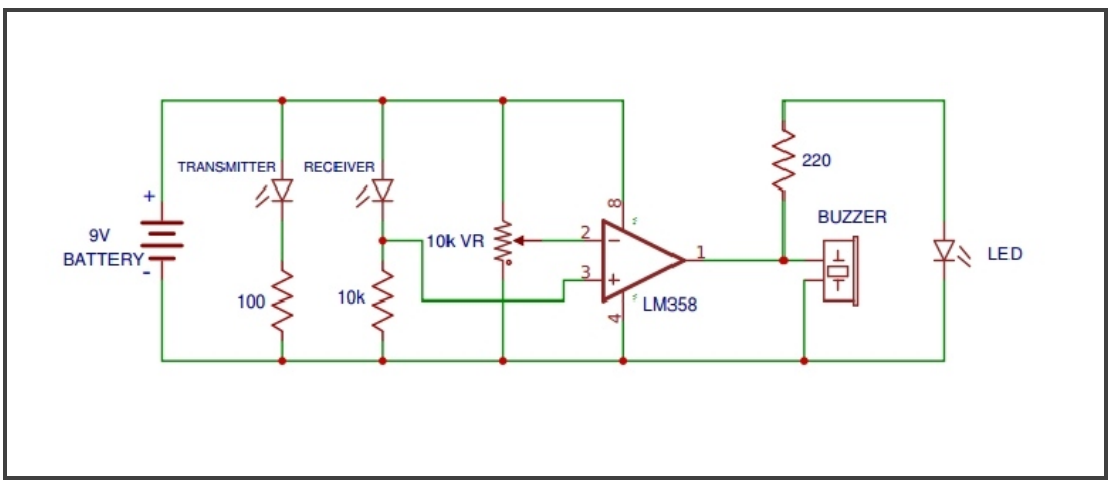

Figure 2.2: Circuit diagram of ——-

2.4 Power Supply requirement

write down power requirement for ckt power budget

2.5 Selection of components/devices

write procedure for selection of components

2.6 Electronic Component list and specifications

Following are the various electronics components are use as shown in table 2.1

Table 2.1: List of components

Sr. No.	Name of components	Description / Type	Name/ Specifications	Designator	Quantity
1	Transistor	Switching and Amplifier	BC547	Q1	1
2	Resistor	CFR	330	R1	1
3	Resistor	CFR	240	R2	1
4	Resistor	CFR	1k	R4	1
5	Capacitor	Disc	10u	C2,C3	2
6	Capacitor	Disc	100n	C1	1
7	Zener diode	Zener	ZENER 3.3V	D1	1
8	Resistor	MFR	100	R5	1
9	Header	Female	1x8	P1	1
10	Diode	Rectifier	1N4007	D2,D3	2
11	Diode	Rectifier	1N4001	D4,D6	2
12	Relay	Relay	JZC-32F/012	RELAY2	1
13	Voltage regulator	Adjustable VR	LM350	U1	1
	Total number of components				16

Chapter 3

EDA tools for schematic and PCB design

Write information/Introduction about the EDA tools

Discus about Uses and Applications of EDA tools .

3.1 Various types EDA Tools

Various EDA tools are

- **Name of EDA Tool 1**
- **Name of EDA Tool 2**
- **Name of EDA Tool 3**
- **Name of EDA Tool N**

3.1.1 Name of EDA Tool 1

Explain briefly Information about EDA Tool 1
if possible display the image of EDA tool 1

3.1.2 Name of EDA Tool 2

Explain briefly Information about EDA Tool 2
if possible display the image of EDA tool 2

3.1.3 Name of EDA Tool 3

Explain briefly Information about EDA Tool 3
if possible display the image of EDA tool 3

3.1.4 Name of EDA Tool N

Explain briefly Information about EDA Tool 4
if possible display the image of EDA tool 2

Write down which EDA tools u r using for implementation of circuit simulation and development of PCB

3.2 Circuit diagram for —- using EDA Tool

Write procedure to draw ciruit diagra using EDA tool
display the image image ckt digram

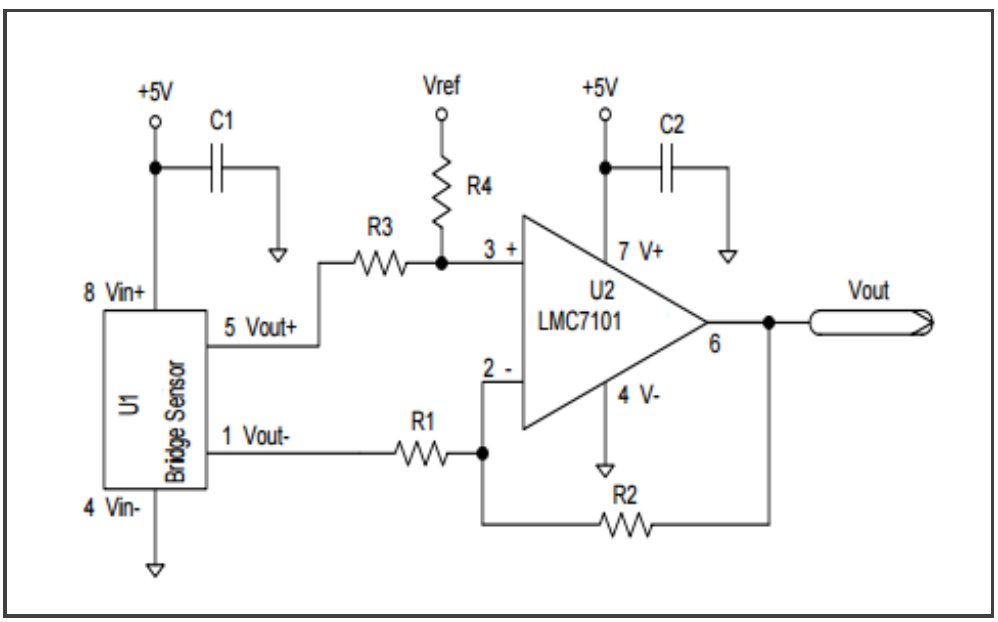

Figure 3.1: Circuit diagram for —- using EDA Tool

3.3 Circuit Simulation using EDA Tool

Write procedure to simulation of ciruit.
Display the simulation images which shows the results
Display Result analysis

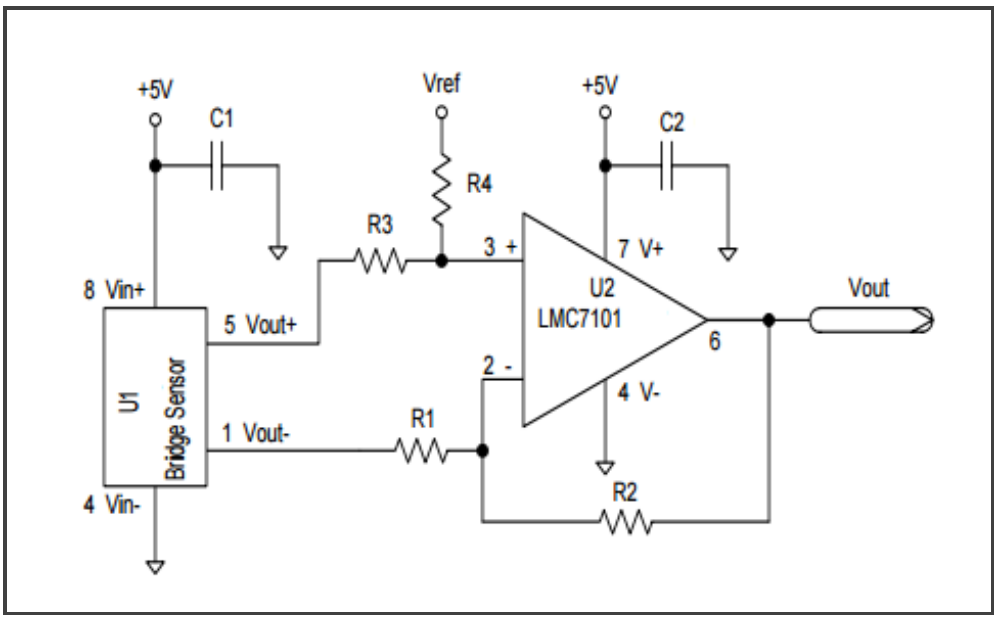

Figure 3.2: Simulation using EDA Tool

Chapter 4

Implementation of PCB using EDA tool

Name the EDA tool used for PCB implementation

4.1 Rules specified for PCB design

Write rules for PCB design.

4.2 Top layer (Image of component layer)

Write importance of top layer.
Display the image of Top layer

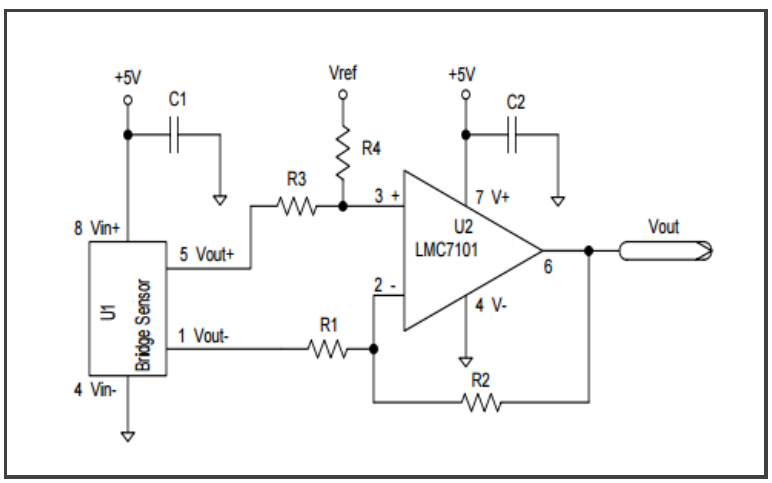

Figure 4.1: Top layer (Image of component layer)

4.3 Bottom layer (Image of Copper layer)

Write importance of Bottom layer.
Display the image of bottom layer

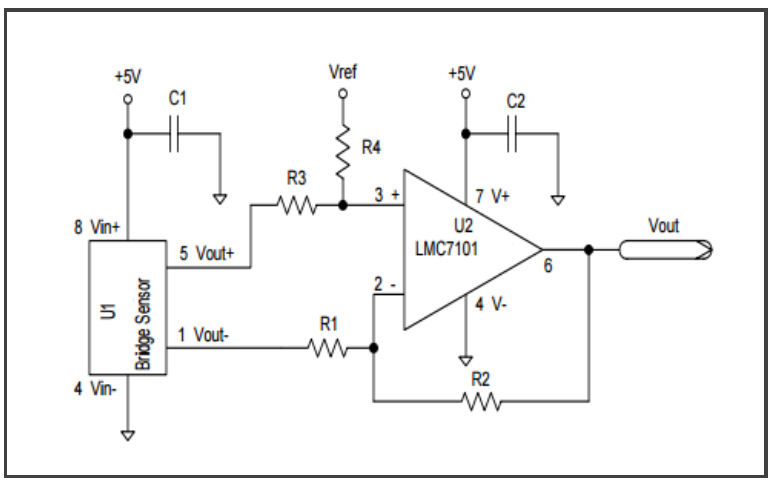

Figure 4.2: Bottom layer (Image of Copper layer)

4.4 3D view of PCB design

Write importance of 3D view.
Display the image of 3D view

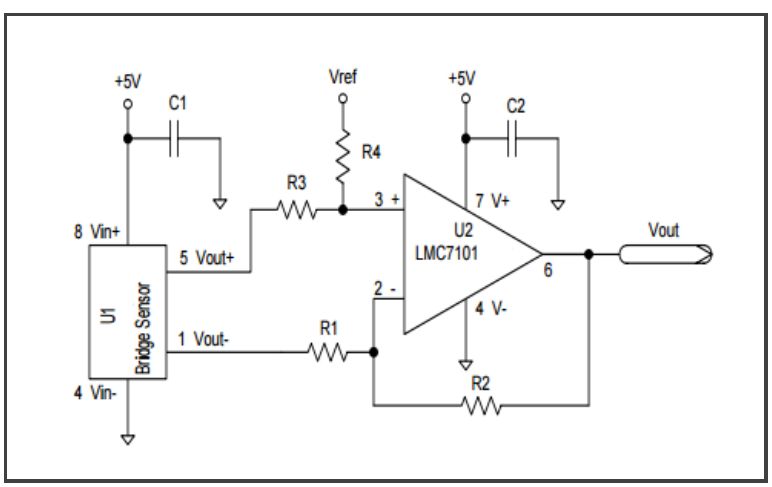

Figure 4.3: 3D View of PCB design

4.5 PCB Information

This is about the information of PCB, like size of PCB, number of components, number of tracks, double side or single sides etc.

You will get this inforation from respective EDA tool.

4.6 PCB Development Process

information about development of PCB
various type of PCB
PCB used for development

4.7 Troubleshooting procedure

Write step by step procedure for Troubleshooting of solders

Chapter 5

Software requirement for developing program

information about software for development of program
draw flowchart or algorithm for the program
explain execution process.

5.1 Platform used for programming

Write the information software/platform/programming language used to develop the program.

5.2 Flowchart/Algorithm

Write Algorithm or Draw flowchart.

Chapter 6

Result Analysis and Discussion

write down result analysis and description

6.1 Experimental Results

Write down experimental results in tabular form or display the images of results

6.2 Observations

Write down observations from the results

Chapter 7

Enclosure Design

7.1 Importance of Enclosure design

write importance of enclosure design Write rules for PCB design. write down the procedure for enclosure design.

7.2 Design of Enclosure

dimension of enclosure design
image of enclosure design.

Chapter 8

Budget

8.1 Budget Requirement

Write down about budget requirement write down budget requirement in tabular form

Chapter 9

Applications and Conclusion

9.1 Applications

write down the applications

9.2 Conclusion

write down the Conclusion

9.3 Future Directions

write down future directions

Bibliography

[1] G. Torzo, *Operational amplifier: basic concepts and cookbook*. Jun. 2012.

[2] A. K.Jain, Y. Chen, and S. C. Dass, "Fingerprint quality indices for predicting authentication performance", vol. 3546, Aug. 2005.

[3] E. Krichen, S. Garcia-Salicetti, and B. Dorizzi, "A new probabilistic iris quality measure for comprehensive noise detection", Oct. 2007, pp. 1–6, ISBN: 978-1-4244-1597-7.

[4] D. Maio, D. Maltoni, R. Cappelli, J. Wayman, and A. K. Jain, *Publicly and freely available biometrics databases*, 2002. [Online]. Available: http://bias.csr.unibo.it/fvc2002/databases.asp.

Appendices

Appendix A

Publications by the Students

Paper Published in International Conference

1. Nipun Jaiswal, Ritu Singh, Siddhi Tonmare and Pravin G. Gawande, "Vertical Aerospace Forming", *VISHWACON 2020, the 3rd International Conference on the Recent Trends in Engineering Technology*, on 13th 14th March, 2020 at Vishwakarma Institute Of Information Technology, Pune.(*A*ccepted)