

Automatic Letter Detecting Device for Home Letter Box

*(A Project Report submitted in partial fulfillment of the requirements
for the award of)*



AMIE

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

AT

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DECLARATION BY STUDENT ABOUT THE ORIGINALITY OF THE WORK

This is certify that the Project work entitled “**Automatic Letter Detecting device for Home Letter Box**” submitted by **Mr. Tej Kumar Paliwal (T-146667-8)** towards partial fulfillment of the requirements for the award of the A.M.I.E. in Electronics & communication Engineering is carried out by him under my supervision and guidance.

As per statement of the candidate this project work has not been submitted for any degree of AMIE or diploma to any university or institution earlier.

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Tej Kumar Paliwal

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The Project Report

Of

Automatic Letter Detecting Device for Home Letter Box

Objective of the study:-

Man is the only human being that develops the goods for its convenience and luxury. With the change in technology, manmade machine are going to be automatic. Present days we can say that it is time of e-mail and internet but still important documents in hard copy and letters are same importance in the daily life. Now everywhere system is in online forms and it is converting in online system but also in some work still we cannot replace the paper work. These papers and documents are needed to post from one place to other place in office and for homes.

In cities where the common men are too busy that they need everything to be done automatically and conveniently. Peoples don't have to times to check his home letter box. If he is waiting for some important documents or letter then also he cannot check his letter box twice a day that postman has dropped the letter or not. So we have to make a system that can fulfill above maintain requirement. So the objective of the study can be described in following points.

1. To make a reliable automatic letter detecting device for home letter box.
2. To make a device that should be in minimum cost.
3. The device should be maintenance free means required very low maintenance and very easy to troubleshoot.
4. The system can install easily.

So people need an automatic system that gives message or indication for the incoming posts in conveniences, efficiently and in reliable method. Today's are very price rising so it must be very low cost. For the fulfillment of this requirement Automatic Letter Box is very suitable electronic device that is easy to operate and very low cost that can be used in every home.

Methodology of the Study:-

The electronic letter box is a very useful gadget for homes and offices. There are a lot of electronic systems available in the market for this purpose but according to our objective here we are using IC555 based circuits. In this circuit we use single Monolithic IC555 in dual in line plastic package with few external components. The main advantage of the letter box is we can find out the presence and absence of letter inside the box without opening the box.

If someone wants to know whether there is a letter present or not inside the letter box, electronic letter box device can help him. In this device light depending resistor (LDR) and a white Light emitting diode (LED) is used as a sensor to detect the presence of letter in the letter box. Thus this circuit solves the problem of going again and again to the gate of the house to check-up whether a letter is there in the box or not.

For the indication circuit in the home or in the office, two LEDs, one is green LED and second is red LED are used to indicate if any letter is present in the letter box or not. When there is no letter present in the letter box, the green LED will glow. As soon as a letter is put in the box, the green LED goes OFF, and the red LED will glow.

For the power supply we can use for battery supply or small DC power rectifier. In this circuit is very less power consumption. There is provision for OFF the system if there is nobody at home or

in the office during holidays. Due to this provision we can reduced its power consumption and also reduced its chanced of failure.

Statement of the Problem:-

Today's there a lot of electronic system are available for this type of requirement but these are not suitable that everybody can afford this types of devices because these are costly, require more care and complicated. According to our objective for the project we can construct/design different type of the electronic device for the fulfillment of our requirement but the device should be according to the following requirement:-

1. It should be lowest cost.
2. It should be most reliable during its operation.
3. It should be maintenance free (require very low maintenance).
4. It should be easy to troubleshooting if there is malfunction.
5. It should be easy installation.

The purpose of our project is to fulfillment of the above described requirement. The lowest cost and reliability is the main requirement because if the system will not be reliable and low cost everybody cannot afford it. Also it should require very low maintenance otherwise it will be more negative point for this device. Also it should be easy for troubleshooting. During problem in the device if it is require expert for repair it, the cost will be automatically increased. So for making described type of device we collected following data and analyzed it.

Data collection:-

Before the data collection and analysis we should be understand the system analysis and why system analysis is necessary? During system analysis some activities are carried out, such as problem definition, design, and implementation. Before designing the actual system/project, we should know.

1. What is the problem?
2. How to solve it?
3. What are the technical factors required?
4. What are its features and limitations?

If a system is designed without considering above activities then the system will not work properly to the satisfaction of user requirement. So system analysis is necessary to design perfect and accurate system, which satisfies the user requirement.

System analysis is central to the whole of system development. It includes gathering the necessary data and developing plans for new system. This is not an easy task because many people need to be satisfied and many conflicts resolved.

The system analyst is the person who guides the analysis, design and implementation and maintenance of a given system. In performing these four tasks, the analyst must always match the information system objectives with the goals of organization.

1. System analyst must determine the requirements of user of a new system so that during analysis they can discuss with users how to design a new system that meets the requirements.
2. System analyst has to provide different solutions to the problem, to satisfy user requirements.
3. The system analyst must be able to find out the details about the system itself. To do this, the analyst will have to look at such things as forms (input, output formats), data used by the organization.
4. System analyst must also be able to work in environments that have considerable ambiguity and uncertainty.
5. System analyst must also be creative and imaginative in producing new solutions to meet user requirements.

Analysis is a detailed study of various operations performed by the system and the relationship within and outside of the system that is it includes finding out in more detailed what the system problem are and what are the different new changes the user wants.

After the system analysis next step is the system design. The system design is most creative and challenging phase of the system design life cycle. Analysis phase is used to design the logical model of the system and system design the physical model of the system.

For the system design two phases is most important, first is Input and second is Output.

INPUT:-