SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: CONTROL SYSTEMS

III YEAR / V SEMESTER

Unit 1 – Mathematical Modelling of Systems

Topic 1: Open Loop and Closed Loop System

What We'll Discuss

TOPIC OUTLINE

Open Loop System

Closed Loop System

Comparison

Types of feedback

DEFINITION

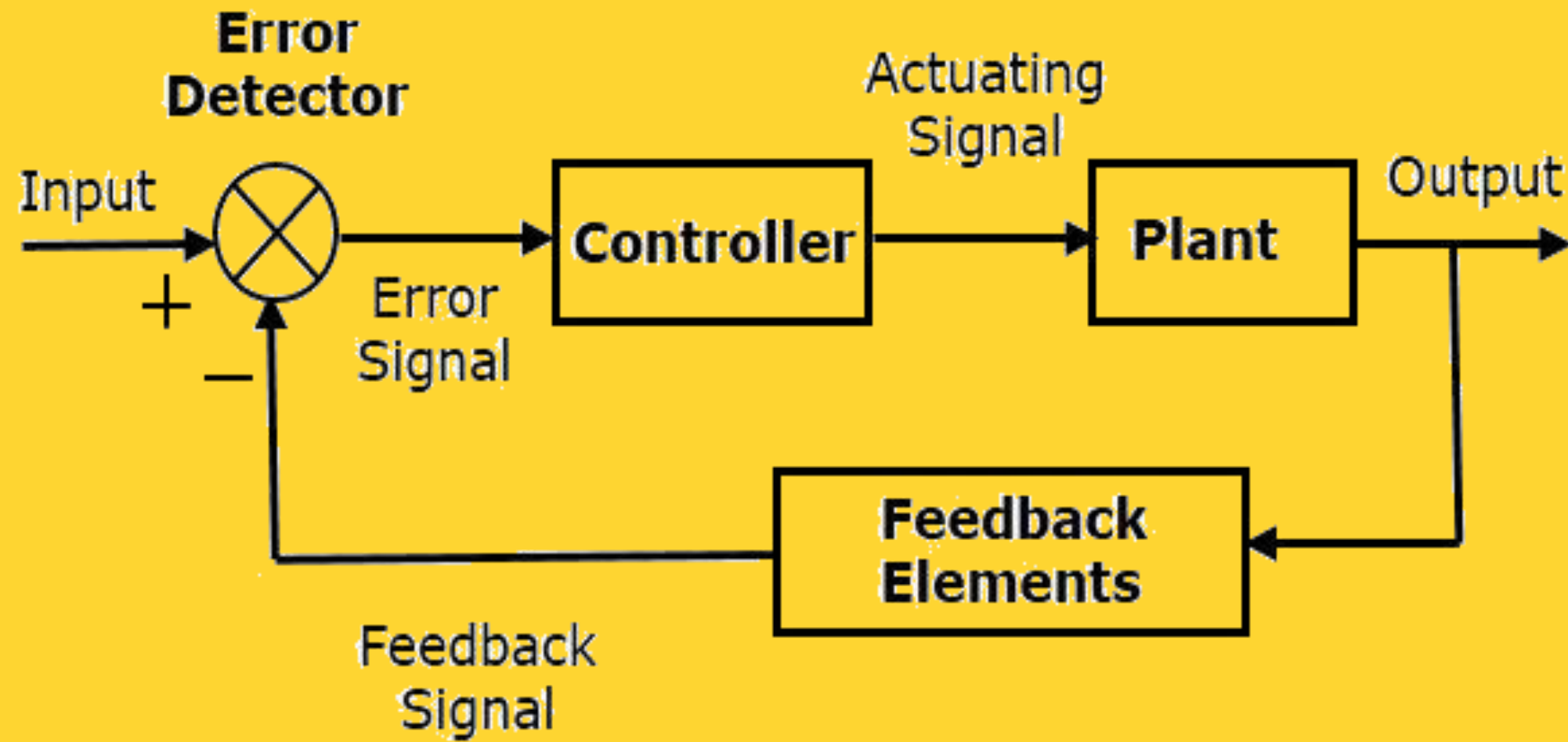|	

INTRODUCTION

- Control Systems can be classified as open loop control systems and closed loop control systems based on the feedback path.

- In open loop control systems, output is not fed-back to the input. So, the control action is independent of the desired output.

- Eg: Electric Hand drier, Automatic washing machine, Bread Toaster, Light Switch, etC

Closed Loop System

- In **closed loop control systems**, output is fed back to the input. So, the control action is dependent on the desired output.

- Eg: Automatic Electric Iron, Servo voltage stabilizer, water level controller, Air Conditioner, etc

OPEN LOOP

- Control action is independent of the desired output.

- Feedback path is not present.

- Easy to design.

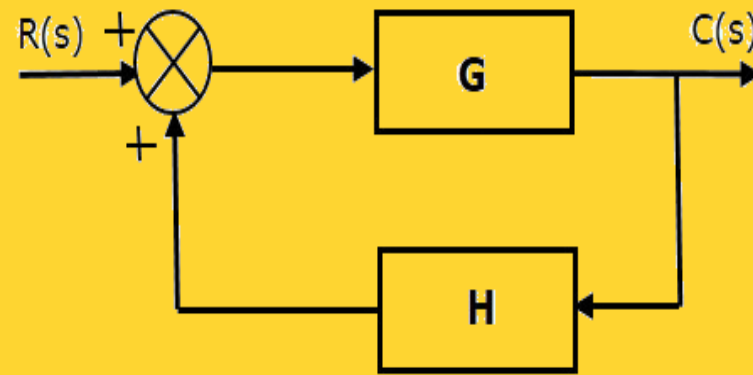- These are economical.

- Inaccurate.

CLOSED LOOP

- Control action is dependent of the desired output

- Feedback path is present.

- Difficult to design.

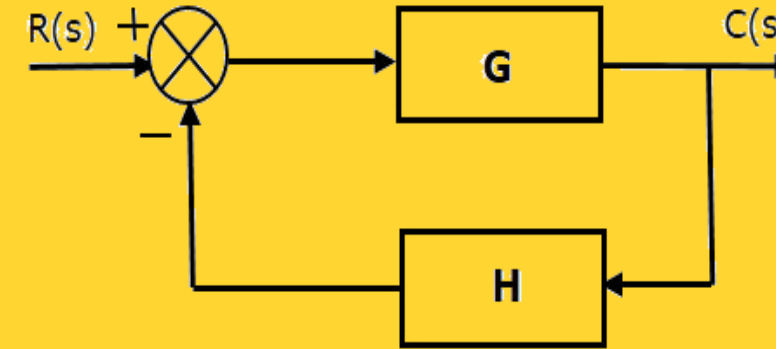- These are costlier.

- Accurate

Types of Feedback

Positive Feedback

- The positive feedback adds the reference input, R(s) and feedback output.

$$T(s) = \frac{G(s)}{1 - G(s)H(s)}$$
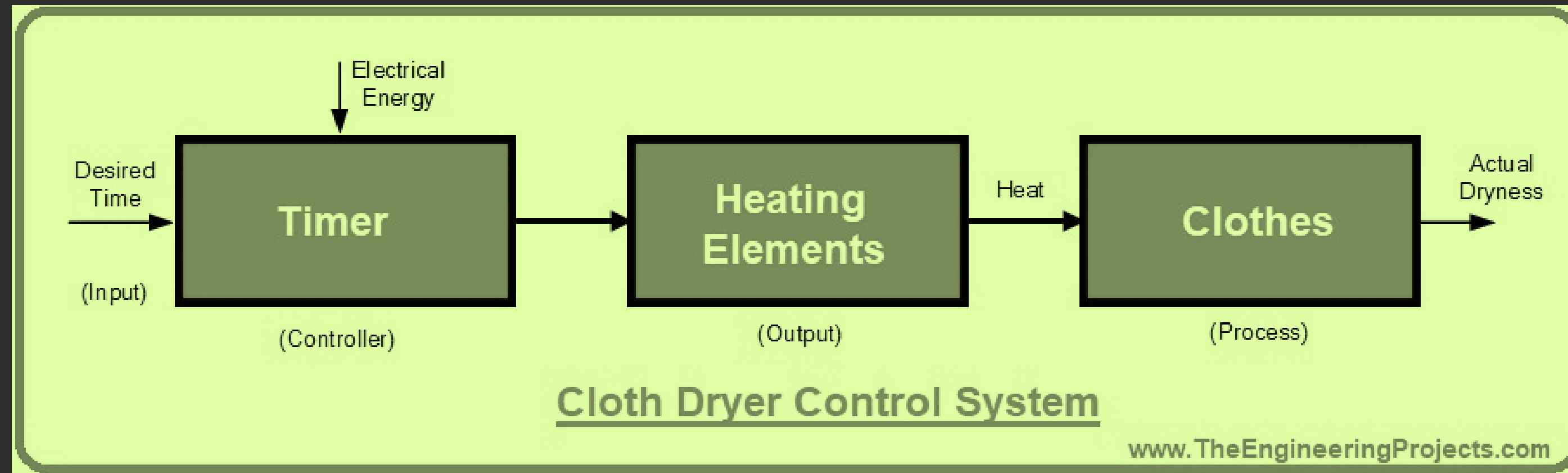
Negative Feedback

- Negative feedback reduces the error between the reference input, R(s) and system output.
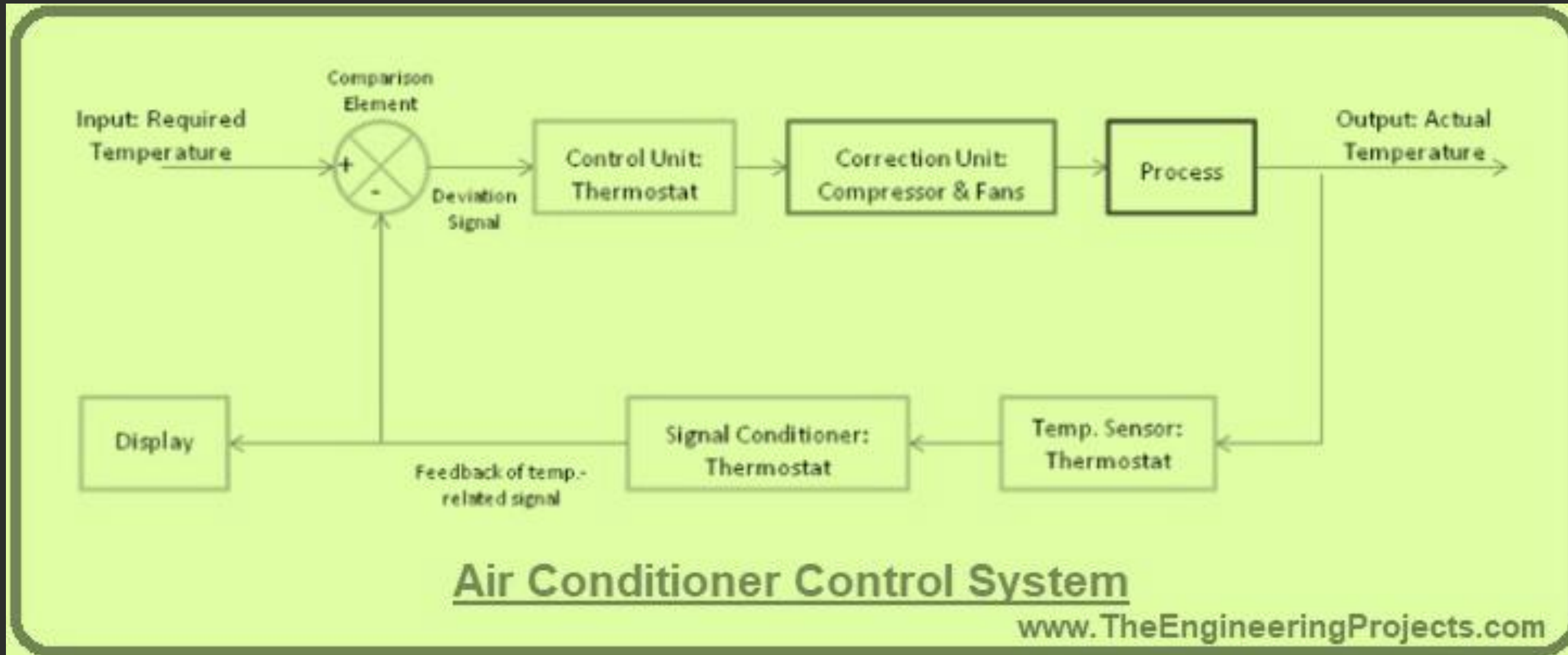
$$T(s) = \frac{G(s)}{1 + G(s)H(s)}$$

APPLICATIONS (OPEN LOOP)

Cloth Dryer Control System

www.TheEngineeringProjects.com

APPLICATIONS (CLOSED LOOP)

Air Conditioner Control System

www.TheEngineeringProjects.com

ASSESSMENT TIME

THANK YOU