

SYSTEMS DIAGRAMS

TO ANSWER ALL THE QUESTIONS YOU WILL NEED TO DOWNLOAD THE 'SYSTEMS APPROACH TO DESIGN, INCLUDING SYSTEMS PROCESSING' APP, FROM THE INTERACTIVE MOBILE APP SECTION OF www.technologystudent.com

LINK

<http://www.technologystudent.com/mobapps/electronics1.pdf>

Once you have downloaded the App, you can use it to navigate the website. You may need to follow the links on each page of the App, to research / complete answers to all the questions.

**ARE YOU READY?
USE THE MOBILE App!!**

1

WHAT ARE THE ADVANTAGES OF FOLLOWING A SYSTEMS DIAGRAM, WHEN PLANNING A PROJECT?

2

NAME THE THREE ASPECTS / SECTIONS / AREAS OF A SYSTEMS DIAGRAM?

3

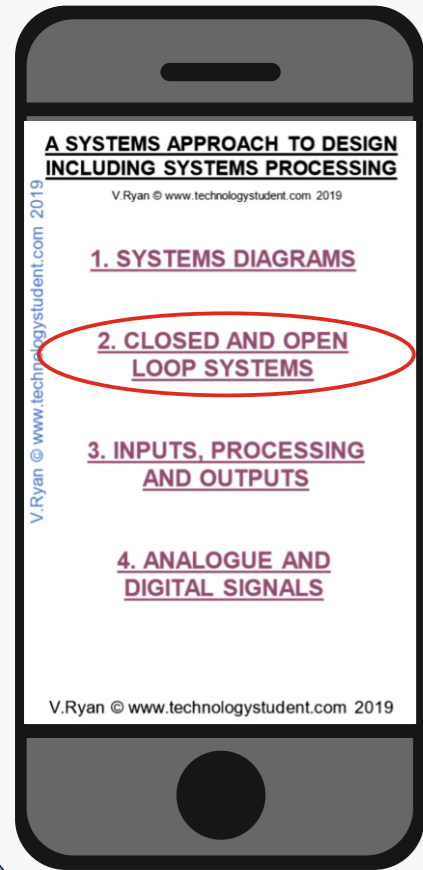
DRAW AN EXAMPLE OF A SYSTEMS DIAGRAM, IN THE NEXT BOX.

Include a sketch(s) and notes, under each of the three aspects / areas.

HINT:



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OPEN SYSTEMS

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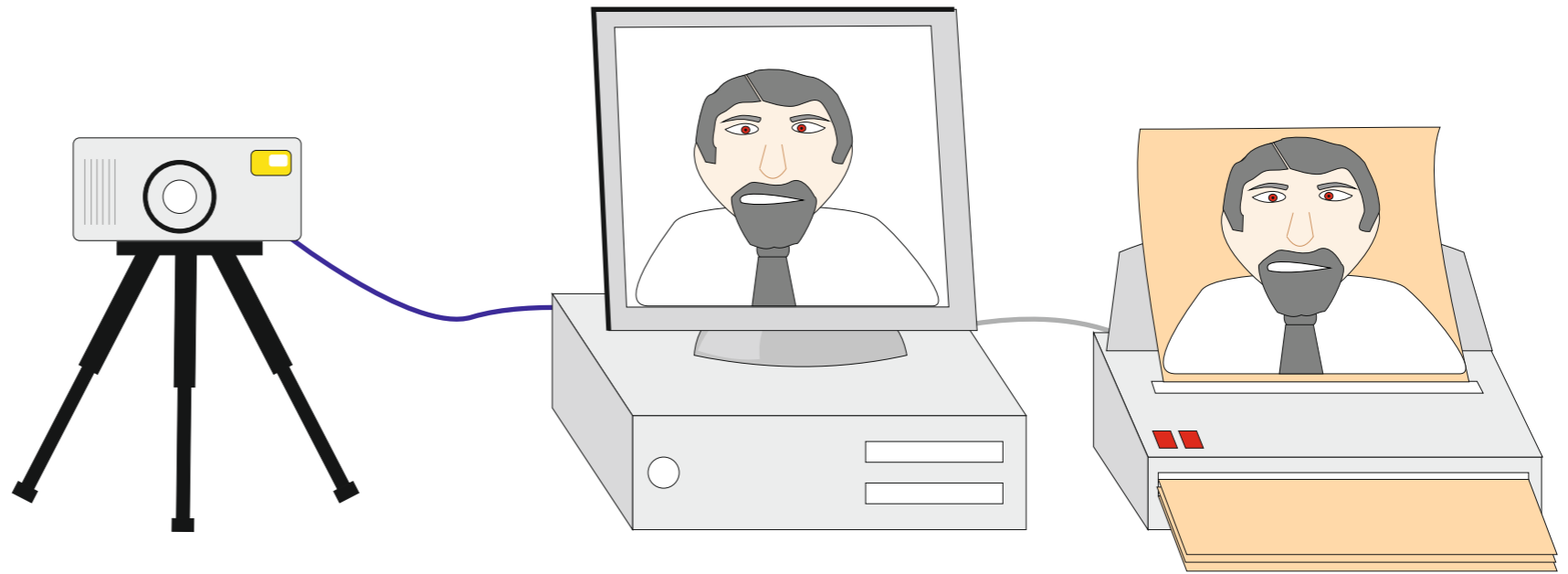
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2

THE DIAGRAM BELOW, REPRESENTS THE STAGES INVOLVED IN TAKING A PHOTOGRAPH, PROCESSING THE PICTURE and USING SOFTWARE AND PRINTING THE FINAL PICTURE. ADD DETAILED NOTES UNDER EACH DIAGRAM, TO EXPLAIN THIS OPEN SYSTEM.



DIGITAL CAMERA

COMPUTER

PRINTER

1

BRIEFLY AND WITH REFERENCE TO THE DIAGRAM BELOW - WHAT IS AN OPEN SYSTEM?



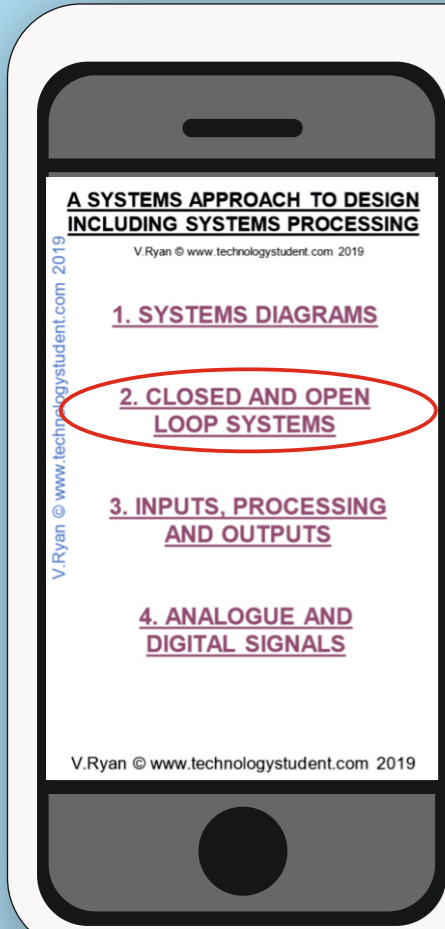
INPUT

PROCESS

OUTPUT

INPUT <hr/> <hr/> <hr/> <hr/>	PROCESS <hr/> <hr/> <hr/> <hr/>	OUTPUT <hr/> <hr/> <hr/> <hr/>
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OPEN AND CLOSED SYSTEMS

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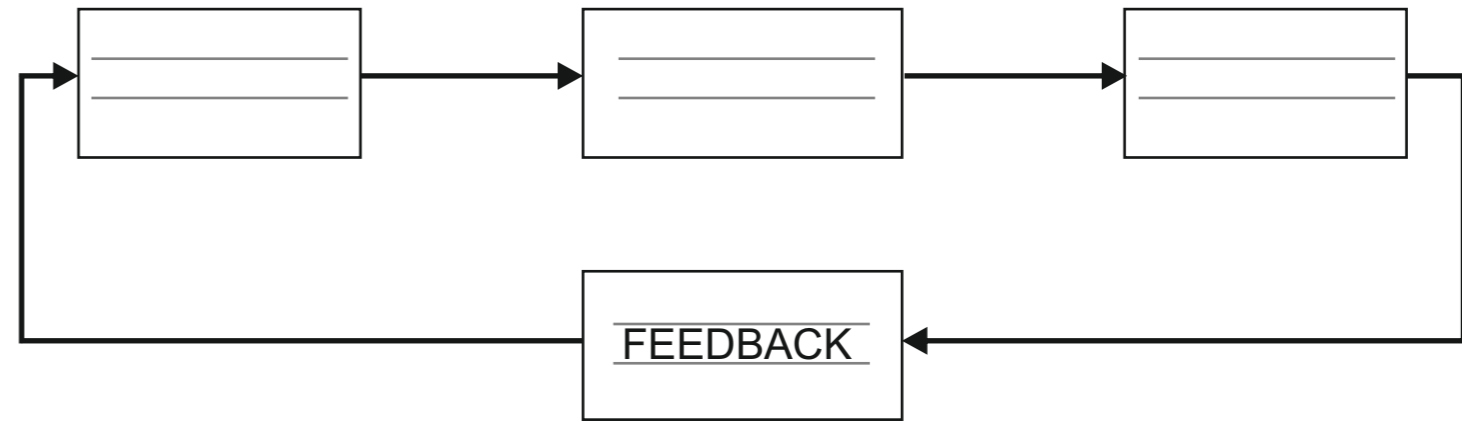
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1

A: In terms of PROCESS, INPUT, OUTPUT - complete the systems diagram below. FEEDBACK has already been added.



AN AUTOMATIC SPRINKLER SYSTEM

B: AN AUTOMATIC WATER SPRINKLER SYSTEM, HAS BEEN ORDERED BY A FARMER. THE SYSTEM MUST HAVE SENSORS, THAT DETECT DRY WEATHER AND TURN ON WATER SPRINKLERS, TO WATER VALUABLE CROPS.

THE STARTING POINT, IS TO CONSIDER, INPUT - PROCESS - OUTPUT - FEEDBACK. A CLOSED SYSTEM IS TO BE DESIGNED, TO CONTROL THE AUTOMATIC SPRINKLER. DESCRIBE A POSSIBLE SOLUTION BY COMPLETING THE CHART BELOW.

2

DESCRIBE TWO SENSORS, THAT COULD BE USED IN AN AUTOMATIC WATER SPRINKLER SYSTEM.

SENSOR ONE:

SENSOR TWO:

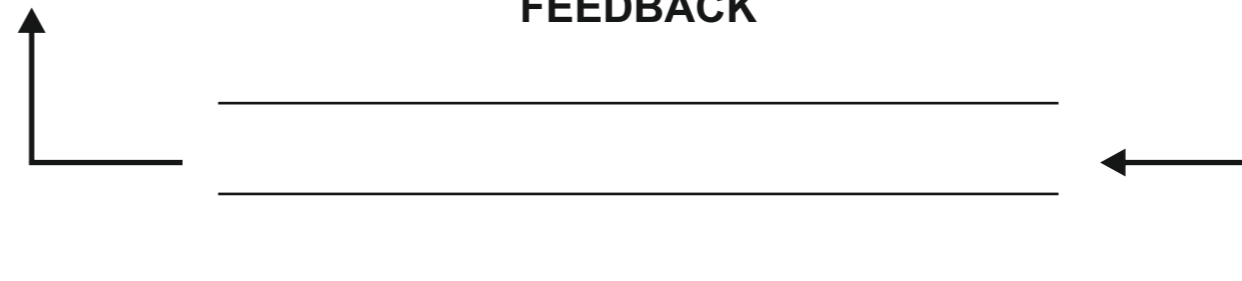
INPUT

PROCESS

OUTPUT

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FEEDBACK



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OPEN SYSTEMS

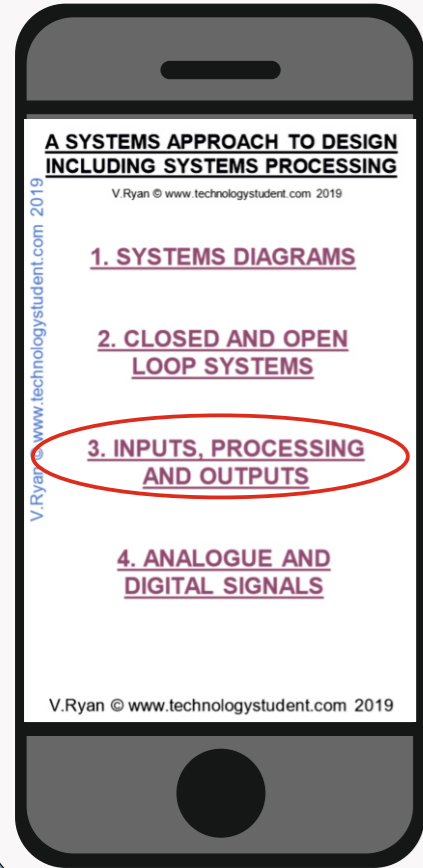
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1

USING THE APP FOR GUIDANCE. SELECT FIVE INPUTS AND FIVE OUTPUTS. DRAW EACH OF YOUR SELECTED INPUTS and OUTPUTS AND THEIR 'ELECTRONIC CIRCUIT DIAGRAM' SYMBOL.

INPUTS

DRAWING

SYMBOL

OUTPUTS

DRAWING

SYMBOL

2

A PIC MICROCONTROLLER IS OFTEN USED TO PROCESS INPUTS AND TO CONTROL OUTPUTS. DESCRIBE A TYPICAL PIC MICROCONTROLLER.

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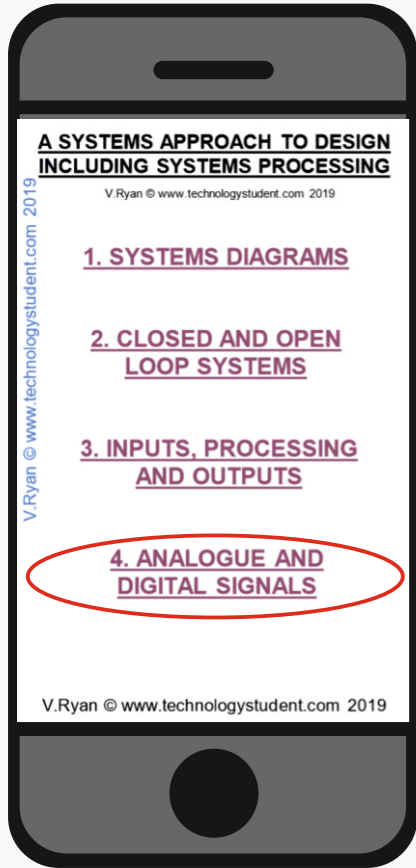
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1


WHAT IS AN ANALOGUE SIGNAL?

Include a sketch / diagram to support your answer. 



2

WHAT IS A DIGITAL SIGNAL?

Include a sketch / diagram to support your answer. 

3

LIST TWO DEVICES THAT ARE ANALOGUE AND TWO THAT ARE DIGITAL.

ANALOGUE:

DIGITAL:

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