ICT APPLICATION

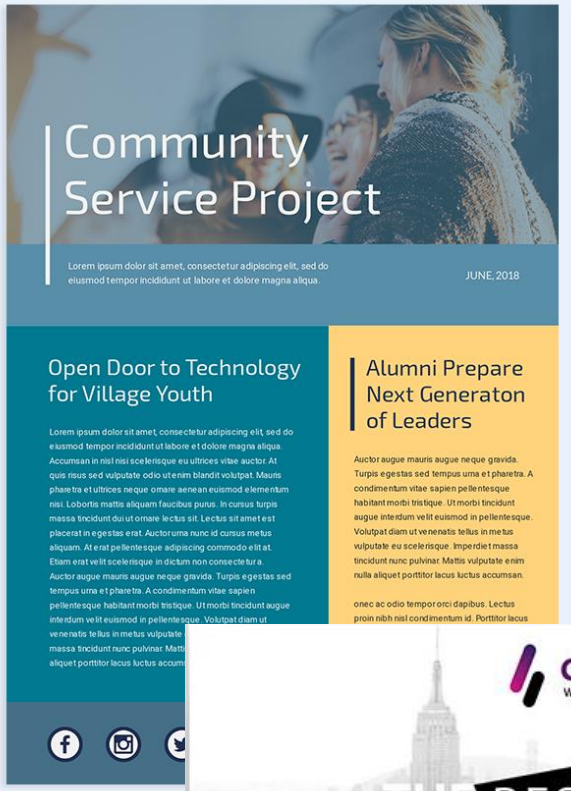
THE RANGE OF COMMUNICATION APPLICATION – PAPER BASED

Newsletter: Used by companies to communicate certain information to staff and customers. May contain information on recent events and identify success company may have experienced.

Brochures/Leaflet: Can be used to advertise a company or to be informative. Brochures are normally printed on glossy paper with a high quality finish.

Flyers: Informative document which can be distributed to promote or create awareness of an up and coming events.

Posters: larger then flyers and are strategically positioned to promote and create awareness. Displayed on billboards, notice boards, buildings as part of an advertising campaign to target a specific target audience.


Community Service Project
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JUNE, 2018
Open Door to Technology for Village Youth
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Promoting Peace through National Cuisines and Art
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Bring New Opportunities to Orphans
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Bringing Generations Together
Teaching Healthy Habits in School
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London for Business


CORPORATE
WWW.COMPANY-NAME.COM
THE BEST
QUALITY
YOUR TEXT GOES HERE
Lorem Ipsum has been the industry's standard scrambled it to make a type specimen book.
GET IN TOUCH
Dolor sit amet consectetuer a dipiscing elit.
SAVE 50%
GREAT FLYER TEMPLATE
PLACE YOUR TEXT HERE
Lorem Ipsum has been the industry's standard scrambled it to make a type specimen book.
YOUR LINK HERE
YOUR LINK HERE


JNL


SAVE WATER
SAVE LIFE

HOW TO DO THESE? – WORD PROCESSING / DTP APP

- Save and insert pictures from clipart, internet, scanned images & digital camera.
- Adjust the page layout.
- Create and Insert Tables/charts
- Formatting the layout of the document.
- Applying effects to images (crop, colour scale, rotate etc.)
- Text Formatting
  - Font Style
  - Bold
  - Alignment (left, centre, right and fully justified)
  - Underline
  - Italic
  - colour

Advantages

- Not necessary to have a computer or internet connection.
- You have a physical copy of the document.

Disadvantages

- These communication would mainly be distributed by hand.
- Printing costs
- Restricted to a smaller target audience.

- DTP application – Desktop publishing (MS Publisher)
- Duplex: a feature of printers that enables automatic printing on both sides of sheet of paper

RANGE OF COMMUNICATION APPLICATION – COMPUTER BASED

Websites

- Companies use websites as a means to communicate with existing and potentially new customers.
- Websites can be easily updated and can provide relevant and up to date information.
- Websites can be used to research, social network, online gaming or for online shopping and banking.

Multimedia Presentations

- A common use for presentations is to provide training in businesses or places of education. The presentation will be a focal point on the projector whilst the speaker is presenting.

RANGE OF COMMUNICATION APPLICATION – COMPUTER BASED

Cartoons

- Animations can also be created using specialist software to promote new products. (CGI – Computer generated imagery software)

Music scores

- Music can now be created and edited on computers. Can be used as part of adverts or slogans.

Advantages

- Can include interactive elements such as sound, video, animation and hyperlinks.
- Can be available on different platforms.

Disadvantages

- Websites can be hacked and information may be altered.
- Setting up website and maintaining would be expensive and would require a special skill set.

RANGE OF COMMUNICATION APPLICATION – MOBILE BASED

Phone Calls

Allows users to make a audio phone calls to each other from any location within the network coverage area.

Text Messages

Allows user to send simple messages to each other even if the recipients phone is turned of or not within network coverage.

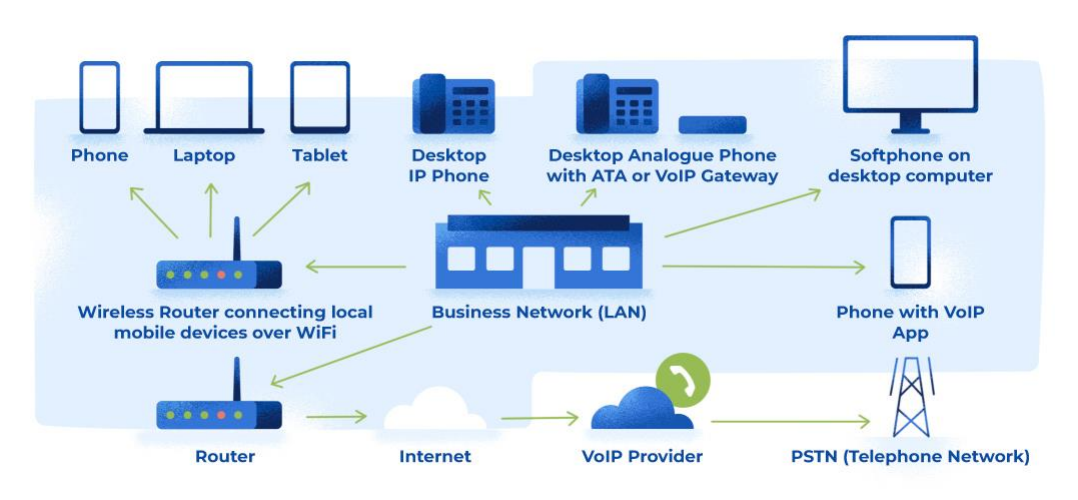
Accessing the Internet

Email and social networking applications are now available on mobile phones which makes it easier for users to stay in contact with each other. Businesses can also use these apps to advertise and communicate with customers.

RANGE OF COMMUNICATION APPLICATION – MOBILE BASED

Voice Over Internet Protocol (VoIP)

When voice calls are taken place over an internet connection (e.g. Whatsapp, Viber).



Advantages

- Mobile phone is portable and can be used on the move.
- Mobile phone contracts can offer free minutes and texts.

Disadvantages

- Long distance calls or phones calls in different countries could be expensive.
- Mobile signal could be weak or non existent in some places.

DATA HANDLING APPLICATION

Advantages of Data Handling Applications for Storing Data

- Data can be updated, organised, sorted and searched in different ways.
- Data can displayed or printed in different formats.
- Data can be backed up or moved using storage media.
- Huge storage space not required (filing cabinets)

Address Lists

Mobile phones include address books which include contact names, numbers, email addresses etc.

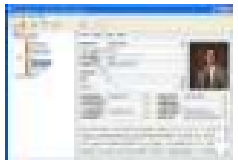
Surveys

Information from surveys could be held on a database so that data could be analysed and queried.

School Records

Student records including assessment and behaviour data. Also staff data could also be held on database

Club/Society Records



Information on current members including names and contact details. Also members methods of payment to pay membership fee.

Libraries

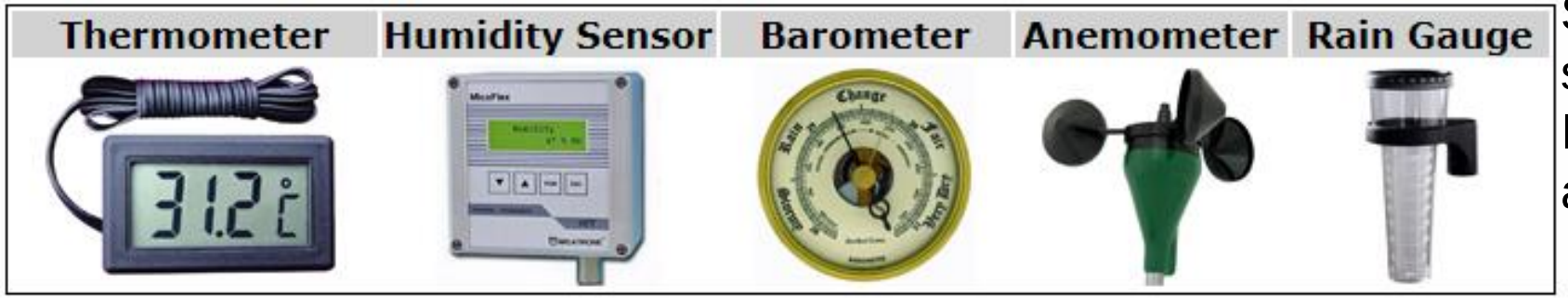
Information on current books which are available to borrow and members of the libraries.

SENSORS

- Collects data automatically by measuring some property of their environment.
- A sensor is device that collects data. A keyboard does nothing until someone presses a key, but a sensor is collecting data all the time on its own.
- There are a lot of different types of sensor, but most have something in common. They measure some physical property that can have any value.

Weather Stations		**Thermometer** for measuring temperature **Anemometer** for measuring wind speed **Wind vane** for measuring wind direction **Hygrometer** for measuring humidity **Barometer** for measuring atmospheric pressure
Green House		**Sensors are placed in the green house to measure whether plants are growing in the correct conditions:** • **Light, Moisture, Humidity, PH Levels**
Patients Vital Signs		**Sensors will be attached to the body to monitor:** • heartbeat, blood pressure, temperature etc.

Detect the brightness of light
Detect air moisture
Sound-Measure the loudness of sound
Infrared-Detect movement (burglar alarm)



WHY USE A COMPUTER TO MEASURE SENSOR DATA INSTEAD OF A PERSON?

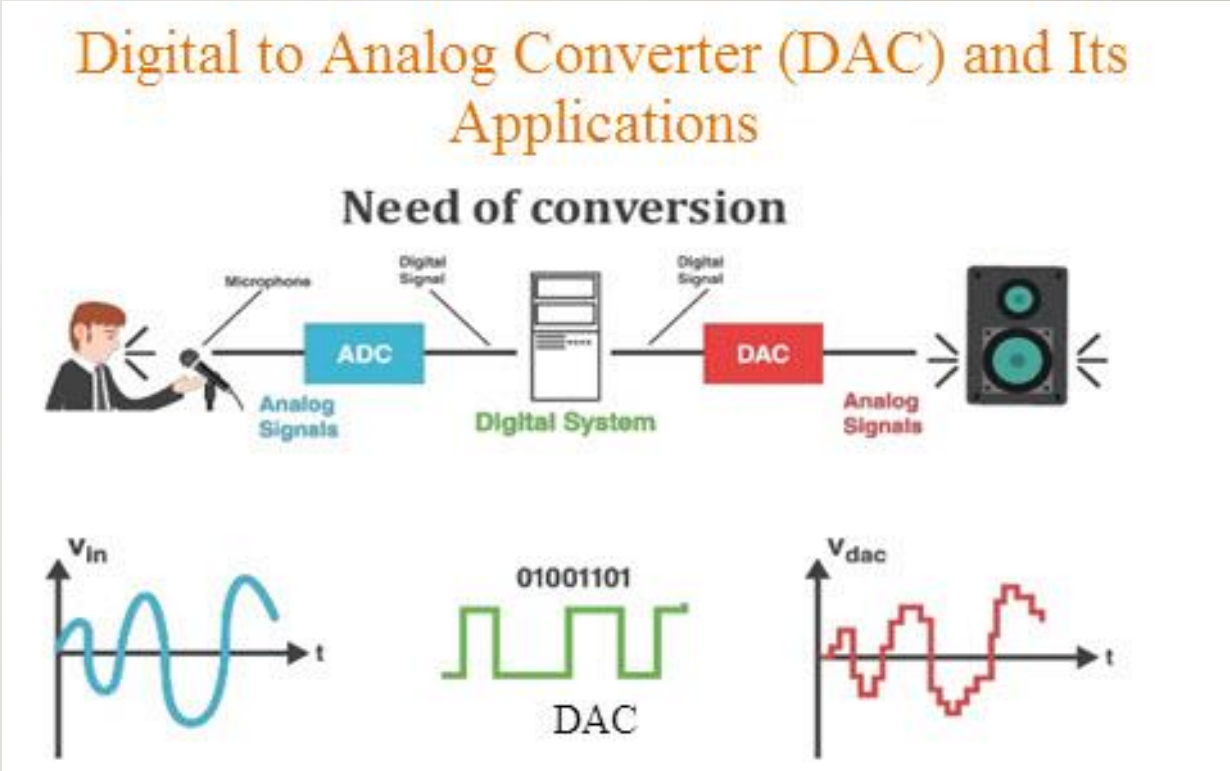
Computers are much **better at reading and measuring quantity data** taken from sensors for the following reasons:

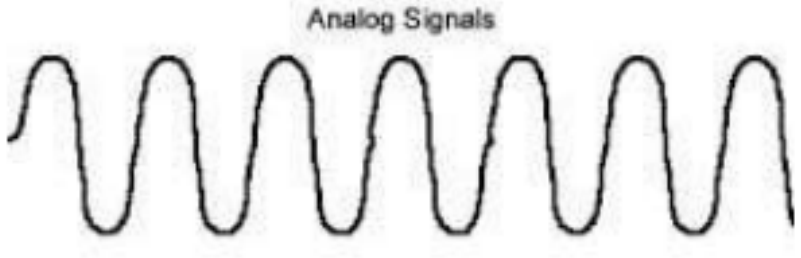
More reliable	Computers **will not forget** to take the readings.
Accuracy	The computer will read the data more **accurately** than a person.
Response time	Computers can **react much quicker to data received**. For example, if a patient's heart rate drops to critical levels an alarm could be sounded automatically.
Work longer	Computers can **read data all day, every day** without getting bored or tired.
Frequency of readings	Computers can **read the data more frequently** than humans can (1000's of times a second if needed).
Automatic Readings	No need for a human to be present. This frees people up to carry out other tasks.
Safer	Some **environments** can be **lethal to humans**. For example monitoring radiation levels in a damaged power station.

MEASUREMENT APPLICATION

Role of Measurement Applications

- Make research to analyze data
- The data from sensors are measured in analogue.
- Before the data can be used in a digital computer it must be converted using an analogue to digital converter.

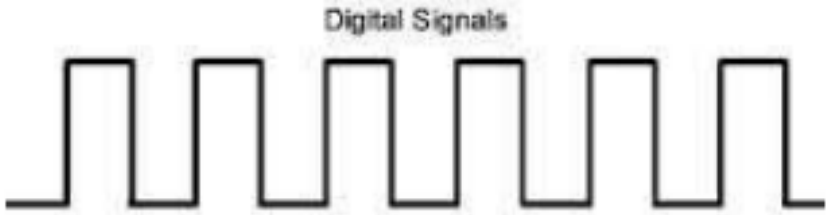




Data collected from Sensors is in Analogue

ADC - Analogue-to-digital converter

Analogue Signal now can be understood by computers.



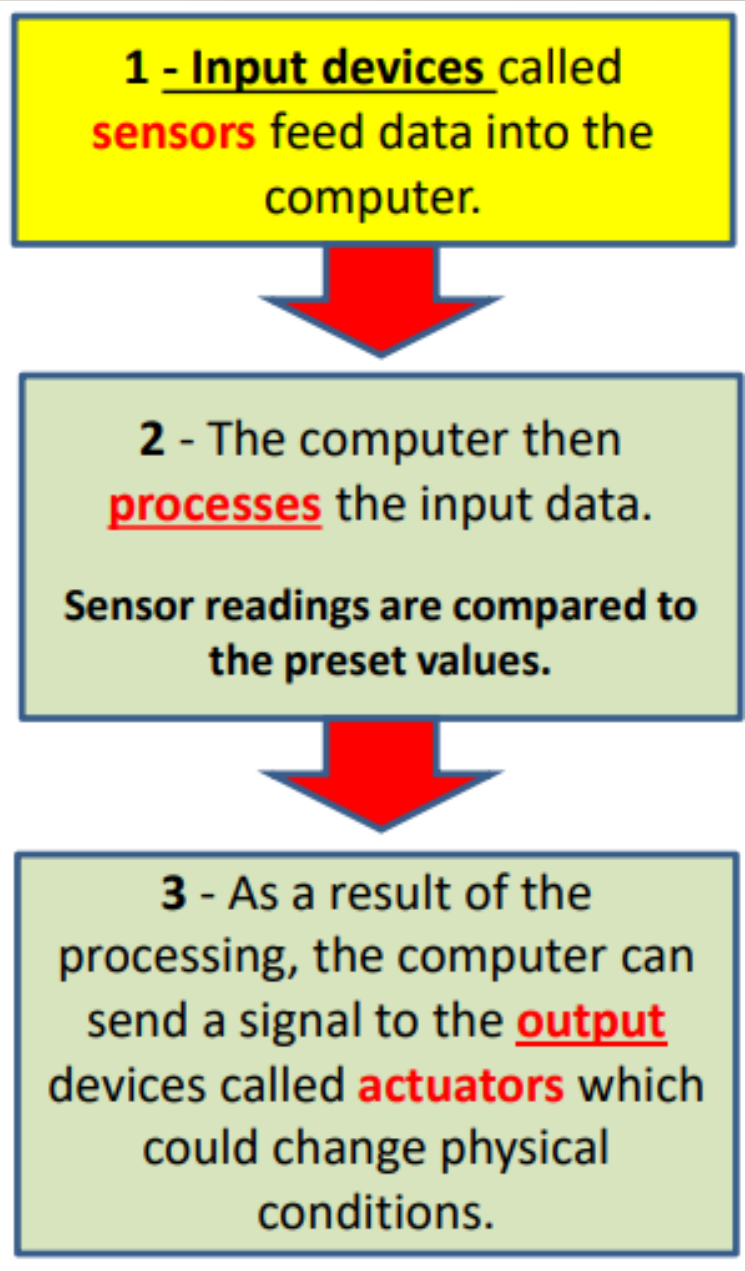
Digital data is based on binary form.

All natural signals are analogue, such as the human voice, animal sounds and notes played by instruments.

In order for these to be recorded and processed by a computer they need to be converted into digital signals (bits 1,0)

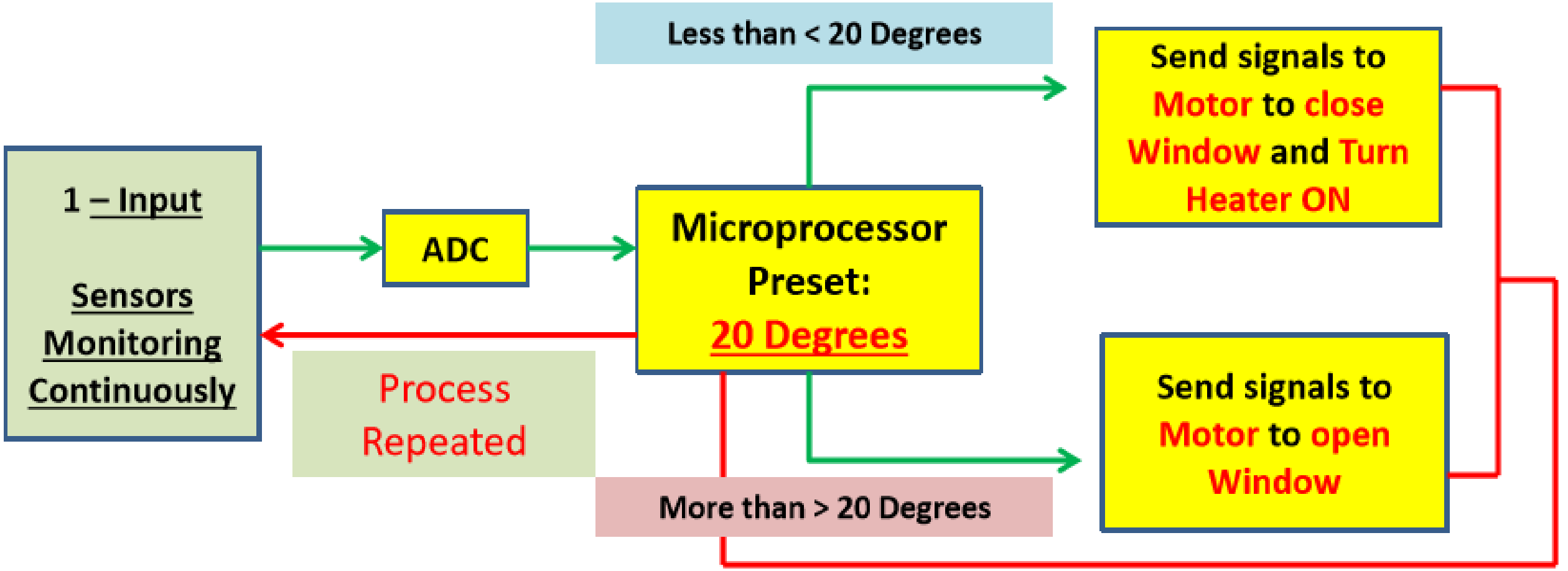
MICROPROCESSOR IN CONTROL APPLICATION

- Computer control is about application where the computer is not only taking measurement from the world around it, but has been given command over some devices which will allow decisions to be made and actions to be taken that will have direct bearing on the results that are taken the next time.
- Control applications use preset values to determine when something should happen. F.ex: a greenhouse heater should come on when the temperature drops below preset value.



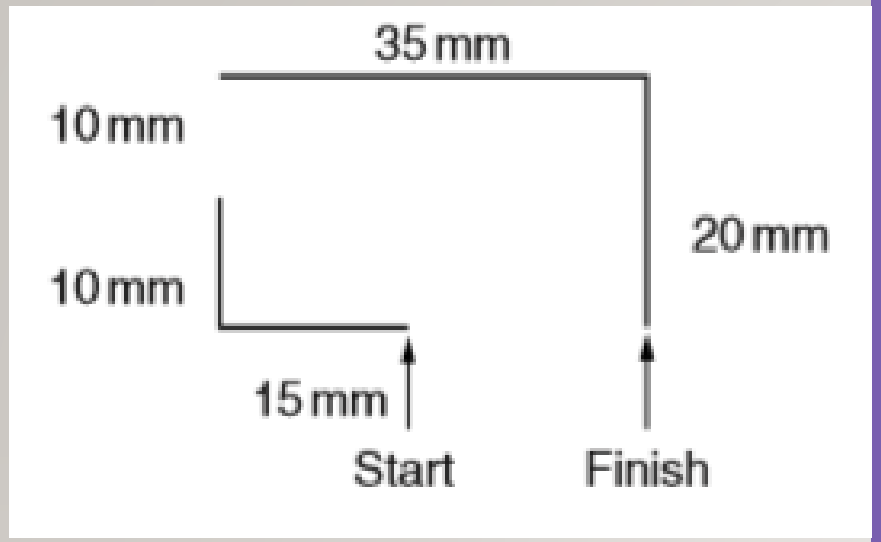
Example	Process Microprocessor	Output
Green House 	**Compares light, temperature, moisture to Pre-set value.** **Sends signal to actuator is necessary. Process is constantly repeated**	• **Light on/off** • **Heater on/off** • **Motor open/close windows**
Patients Vital Signs 	Compares Vital signs (heartbeat, blood pressure, temperature **to Pre-set value.** **Sends signal to actuator is necessary. Process is constantly repeated**	• **Buzzer will alert staff to any vital signs which are below the expected values.**

Green House (Temperature Example)

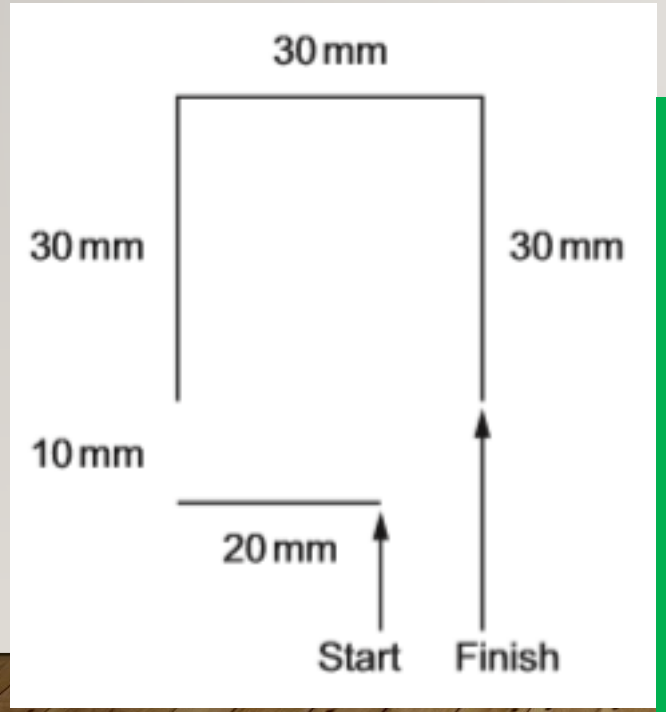


TURTLE GRAPHICS

INSTRUCTION	MEANING
FORWARD *n*	Move *n* mm forward
BACKWARD *n*	Move *n* mm backward
LEFT *t*	Turn left *t* degrees
RIGHT *t*	Turn right *t* degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT *n*	Repeat the following instructions *n* times
END REPEAT	Finish the REPEAT loop



1. LEFT 90
2. PENDOWN
3. FORWARD 15
4. RIGHT 90
5. FORWARD 10
6. PENUP
7. FORWARD 10
8. PENDOWN
9. RIGHT 90
10. FORWARD 35
11. RIGHT 90
12. FORWARD 20



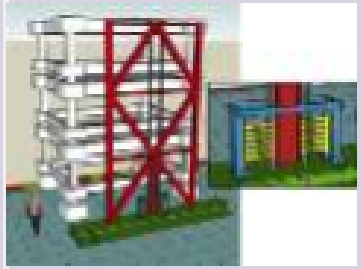
1. PENDOWN
2. LEFT 90
3. FORWARD 20
4. RIGHT 90
5. PENUP
6. FORWARD 10
7. PENDOWN
8. REPEAT 3
9. FORWARD 30
10. RIGHT 90
11. ENDREPEAT

Зорилго бол үүнийг зурах алхамыг тогтоох юм. Яг ингэж бичиж байж оноогоо авах юм биш шүү. Би урагш явж зурсан. Та нар яст мэлхийгээ доошоо харуулаад хойшоо ухарч бас болно. Хамгийн гол нь бичсэн кодоор зураг зурагдсан байх ёстой.

MODELLING APPLICATIONS

- A computer model is a model which would replicate (simulate) the functions of a real system.
- Models use mathematical formulae to explore scenarios and to make predictions. Simulations are also based on mathematical formulae, and are used to predict how a system will behave in a certain set of conditions. The major difference is that a simulation recreates a scenario, using something physical to mimic the system.
- There are two obvious reasons for modelling a situation
  - To test situations without endangering anybody
  - To test their feasibility without spending large sums of money

Type of Modelling Application

Spreadsheets		• Business used can use spreadsheets to forecast spreadsheet models to forecast future profit or loss. • Due to the use of formulas business can adjust certain values to see automatic changes in potential revenue.
Flight Simulator		• Pilots are able to learn how to fly a plane using a flight simulator. • The controls and the interface is the same as real plane. • Different conditions can be tested. • Reduced costs as a plane would not be damaged in the training.
Building Simulator		• Before buildings are constructed simulations take place to ensure they are fit for purpose. • Simulations ensure the potential building could cope with physical demands including earthquake/storm threats.
Traffic Lights		• A traffic light simulator looks at the flow of traffic (data captured from sensors). • The simulator will adjust the lights to best control the flow of traffic.

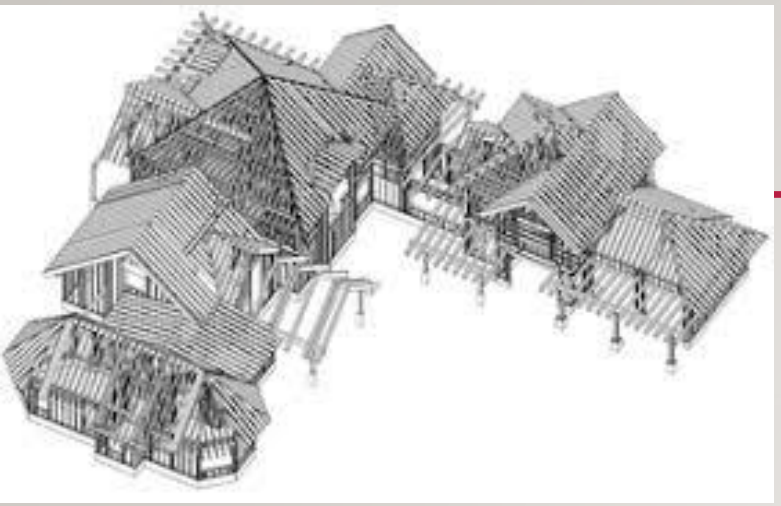
WHY WE USE COMPUTER MODELS

To save costs and time by testing a system before you build it.
e.g. Creating bridges

To train people how to use the system in a safe controlled environment.
e.g. Flight Simulators.

To investigate the capabilities of the system in detail by interrogating and manipulating the computer model.

To make predictions of how the system would operate in the future.
e.g. Use of spreadsheets to track profit/loss over time



Salary Increase: 10%

Employee	Salary	Salary with increase
Michael	£30,000	£33,000
Tanja	£20,000	£22,000
Grant	£25,000	£27,500
	Total Salary Costs:	**£82,500**
	Gross Profit:	**£100,000**
	Net Profit:	**£17,500**

Advantages of using simulators

- - Conditions can be varied and outcomes investigated
- -Critical situations can be investigated without risk
- - People aren't put in any danger
- - Expensive prototypes don't need to be built
- - Time can be speeded up or slowed down
- - Manoevres can be run again and again until the pilot/driver etc is competent
- No equipment is damaged

Disadvantages of using simulators

- Models and simulations can't ever completely re-create **all** real-life situations.
- Not every possible situation may have been programmed into the simulation.
- They require **VERY** fast processors
- The equipment and software are expensive to purchase.
- Staff need to be trained how to use the software and equipment.

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