

ST CLEMENT'S SECONDARY

General computer applications

SENIOR SECONDARY
GRADE 10



INTRODUCTION TO RANGE AND SCOPE OF COMPUTER APPLICATIONS



Application of computers in a home environment

- Computer are a part of our everyday life.



Washing machines

- It is a machine with user interface and push buttons.
- The embedded system in the washing machine controls all the basic functions of the washing machine.
- The washing machine has control and sensing systems for tracking the speed of motors, water temperature and electrical failures





Functions of the washing machine

- Washing
- Rinsing
- Spinning
- Drying
- Cold wash
- Hot wash

Microwave ovens

- the microprocessor in a microwave is specifically designed to run the front-panel controls and all timing and electronics of the oven.



烹調 解凍 公斤 份量 查閱

REHEAT 翻熱

Bread 麵包 Beverage 飲品

AUTO COOK 自動烹調

Rice 米飯 Congee/白粥/稀白粥 Porridge

Steam Menu 蒸 Slow Cook 緩速烹調

EASY DEFROST 簡便解凍

EXPRESS DEFROST 高速解凍

1 2 3

4 5 6

7 8 9

POWER LEVEL 微波強度 0

CLOCK 時鐘

STOP / CLEAR 暫停 / 取消

INSTANT COOK / START 即時烹調 / 開始

P1 P2 P3

Stop Start

90 180 360 600 1000

Micro Watt

[Empty display area]

Exercise

1. Give one application of computers in our homes.
2. State two functions of the washing machine.
3. State two functions of the microwave.

Operations performed by microprocessor

- Tracking the elapsed time
- Sending and receiving signals
- Generating output signals to adjust power levels

Digital cameras

- Digital cameras also have embedded computers



The functions of a microprocessor in a camera

- Read the intensity and colour of light
- Storing and deleting images
- Viewing images
- Transferring images

Entertainment application

- Computer games
- Charts
- Online gaming
- Greeting cards
- Interactive websites

Entertainment appliances

- The internet, television, digital video recorder(DVDs) and consoles have converged, making computers to be a central part of home entertainment and digital media delivery.
- **convergence** refers to previously distinct technologies that combining to form new technologies with multiple capabilities. e.g. TV its now beyond it primary function of visual communication, but now can be used to surf the web, sending and receiving emails.

Exercise

1. State two uses of a microprocessor in a camera.
2. Give two entertainment application of computers.
3. Explain how internet can be used as an entertainment platform

OFFICE APPLICATION



Office application of computers

- The computer is a universal tool for on-the-job decision making, productivity and communication.

Office automation

- This includes
- Computers
- Telephone systems
- VoIP technologies
- Copiers
- Printers (inkjet, LaserJet or multifunctional printers)
- Fax machines

Application of computers in offices

- Allowing individuals to enter the building by biometrics (finger print, hand scan, face scan)
- With the increase of ICT, **ergonomics** and workplace design must be a focal consideration in a workplace.
- **Ergonomics** is the science of designing equipment and items for work place. Such as chairs, desks and computer equipment in accordance with the way humans think, see and behave.
- The goal of ergonomics is to incorporate user comfort, efficiency, productivity and safety in the design. This reduces error, fatigue and stress.

Office information system (OIS)

- **Office information system** enables employees to perform tasks using computers and other electronic devices.
- The computers in an organisation are networked so that information and resources can be shared.
- A computer network is a group of two or more computers and devices linked together so that they can communicate with one another over a shared network medium.

Common software products

- Common software products that are installed on the computers or network servers to support activities of the organisation.
- Word processing
- Spreadsheet
- Database
- Presentation
- Web browser
- Groupware applications

Mobile office

- ICT provides a way to be productive when away from the office.
- Mobile users have laptops and cell phone to talk to clients, colleagues and access to e-mails and the internet.

Advantages of mobile office

- Time flexibility
- Location flexibility
- Decrease expenses
- Improved productivity

Disadvantages of mobile office

- It may intrude your personal time

Virtual office

- It uses mobile technologies without a formal office space.
- Meetings are conducted via teleconferencing and video conferencing

Intranets

- An intranet is an internal or private network that uses interne technologies to facilitate communication between people or workgroups to improve data sharing and knowledge base of an organisation's employees.

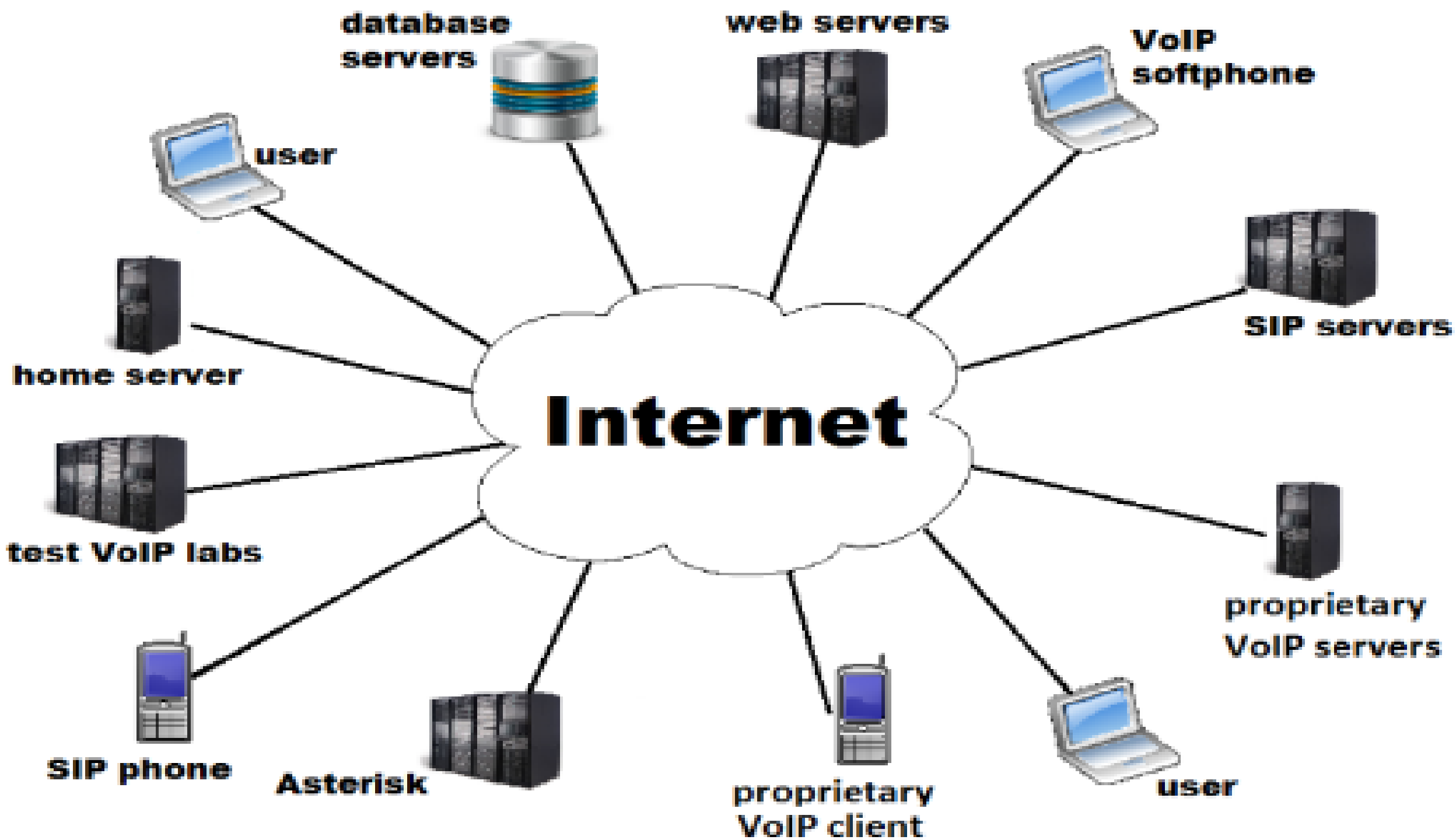
Uses of intranets

- Viewing company benefits and policies, Internal telephone directories
- Allows suppliers access part of the intranet over internet with strict access control. When this happens, the intranet becomes extranet. e.g. when making electronic payments or retrieve statements.

The internet

- It is the world's largest computer network.





Uses of internet

- Marketing
- E-commerce
- Collaboration and e-communication
- Video conferencing
- Voice over internet protocol
- Social networking
- Email and instant messaging
- Cloud computing

Exercise

Mukuba Secondary School has installed an intranet. The network will enable lessons to be taught using video conferencing.

(a) What is an intranet?

(b) State other two uses of intranet to Mukuba Secondary apart from video conferencing.

(c) Give two uses of the internet.

Video conferencing

- This is the meeting of people who are geographically separate, using network or the internet to transmit audio and video data.



Advantages

- Reduces travelling costs
- Accommodation expenses
- Meetings can be organised in a short time
- Employees can work from home

Disadvantages

- Poor hardware, software, internet connectivity, lack of participant skills reduces the efficiency of a video conference.
- Lack of direct face-to-face contact

Voice over internet protocol

- This is the latest way of making phone calls.
- VoIP programs such as Skype and Google Voice offer free voice and video services.

VIP



Advantages Voice over internet protocol

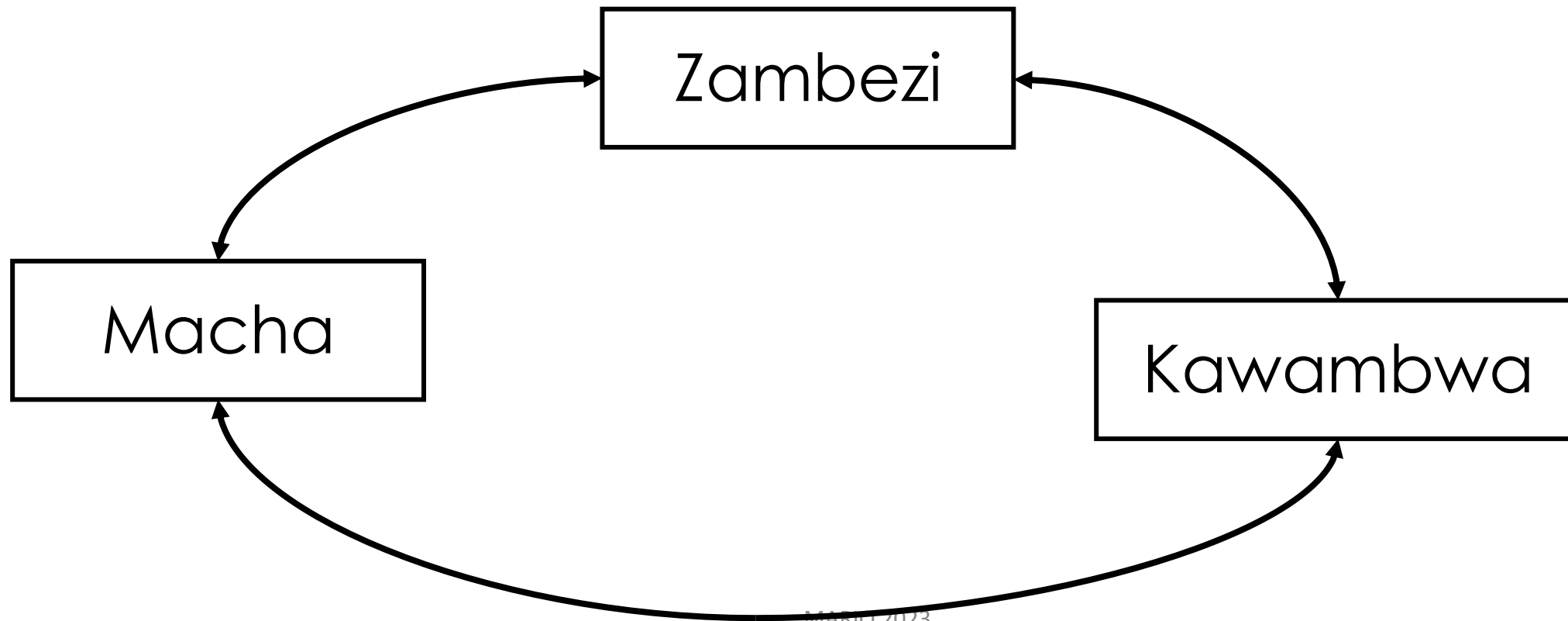
- Low cost
- You can call from anywhere
- Live video chats

Disadvantages Voice over internet protocol

- Power outages
- It can be unreliable at times and data can be lost

Exercise

1. Schools have set up a video conferencing facility connecting Zambezi Secondary, Macha Secondary and Kawambwa secondary Schools.



- (a) Describe video conferencing
- (b) Explain two possible problems associated with this video conferencing.
- (c) Apart from travelling and accommodation costs, what two benefits does the schools gain from using video conferencing.
- (d) State the difference between video conferencing and VoIP.

Communication in systems

- Computers connected to the internet can be used for:

- ❖ obtaining information from the internet.
- ❖ Organising and accessing multimedia content
- ❖ Communicating with others
- ❖ Exchange emails
- ❖ Shopping online
- ❖ Bookings
- ❖ E-filing taxes
- ❖ E-books

- ❖ Watching videos
- ❖ Downloading music and other things
- ❖ Attending lectures
- ❖ Paying bills
- ❖ Managing bank accounts
- ❖ Checking news

Home computing

- Computers have enabled telecommunicating in which an employee works for the company entirely from home.
- Wireless networking has added to convenience of home computing. it enables someone to work from any location in the home and still have access to all resources.

COMMERCIAL APPLICATION





POS

- A POS is combination of cash register, printer and a barcode reader.
- A POS terminal records purchases, credit or debt card payments and returns and updates the stock.
- It is used in different industries such as restaurants, hotels, retail environment, stadiums.

Point-of-sale

- Computers in business increases efficiency and productivity.
- They keep records of accounts and finances.
- Develop budgets
- Do research
- Communicate with customers and employees.

stock controls

- Stock control (inventory control) is used to show how much stock you have at any one time, and how you keep track of it.
- It is easier and faster to retrieve information from a computerised stock control system.



Importance of stock control

- It ensures there is enough raw materials to meet planned production.
- It allows a company to buy in bulk at lower prices.
- The company will have reserves to allow production to continue even if there are delivery delays from suppliers.
- Holding stock is a safeguard against price increases.
- Data can be analysed to determine the effectiveness of an advertising campaign or a sales promotion.
- It helps in the identification of the cheapest and fastest suppliers.
- It allows integration with other systems such as accounting and invoicing systems

Exercise

Dorica's cake shop has the number of Point of sale terminals and encourages the use of debit and credit cards.

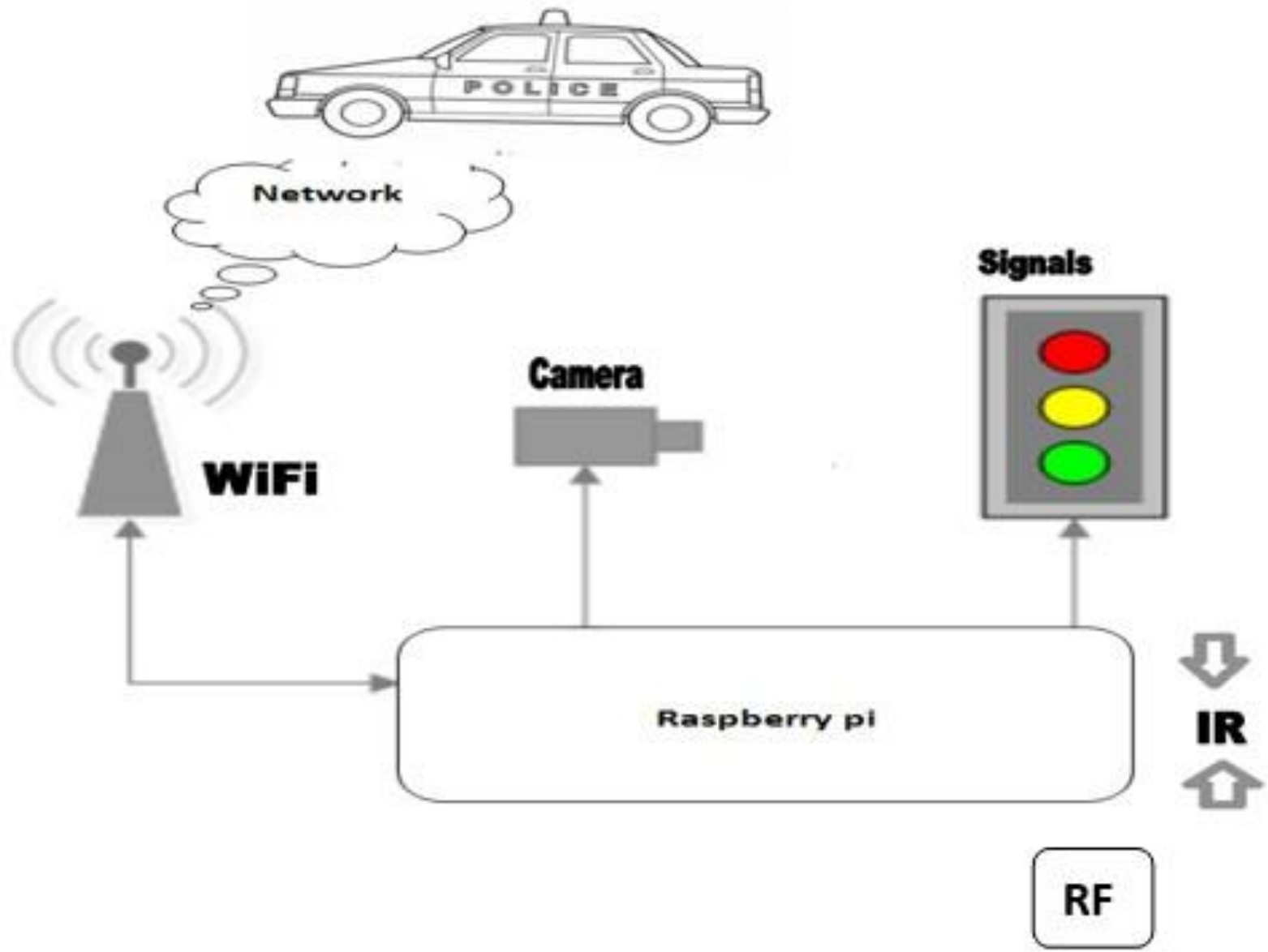
- (a) State two output devices which would be used at the point of sale.
- (b) Give two operations of the point of sale.
- (c) Apart from cake shop, state other two places where POS can be used.
- (d) Describe the importance of stock control system.

Traffic Controls

- Cities have become congested because of traffic conditions, therefore, municipalities have implemented traffic monitoring control systems.

Examples of traffic monitoring and control systems.

- Traffic management control systems.
- Real-time monitoring
- CCTV monitoring systems



Traffic management control systems.

- Traffic management control systems monitors, operate and control traffic lights.
- Traffic management control systems reduce the journey time of cars.
- Computers use information from sensors on the roadside to determine weather traffic is getting heavy or congested, the computer changes the timing of traffic lights.

Real-time monitoring

- The traffic controllers use highly reliable and GUI that enable real-time monitoring and onscreen interaction with data sources and signal equipment.
- Computers gather information from sensors, CCTV cameras, linked traffic controllers and databases and display information (such as number of cars, average speed, road conditions) in a visualisation system.
- Traffic controllers use the information to make quick decision to manage, control and reduce road congestion.





Exercise

A road system is to be operated using computer-controlled traffic lights. Sensors are used as part of the control system.

- (a) State two data that can be collected by the computer-controlled system.
- (b) Explain the user of sensors on the Traffic management control systems
- (c) Explain how the sensors, traffic lights and computers interact to control the traffic flow in the system.

INFORMATION SYSTEMS



Information
systems



Data processing Systems

- An information system (IS) is an interconnected set of components used to collect, store, process and transmit data and digital information.
- This enables making decisions and make conclusions to increase productivity and performance of the organisation.

Uses of information systems in an organisation

- Solve problems
- Exploit opportunities
- Confront crises or threats

Industrial uses of computers

- Improve accuracy of the processes.
- In designing
 - Creating engineering, scientific, architectural designs
- Control processes
- Customer service
- Record information
- Entertainment

Technical use of computers

- Transfer data
- Control data
- Processes data
- Record data

Scientific uses of computers

- Communication
- Research
- Data analysis
- Solving complex mathematical questions
- To make predictions
- Visualise a real life situation

MANAGEMENT INFORMATION SYSTEM

“MIS IS A PLANNED SYSTEM OF COLLECTING, STORING AND DISSEMINATING DATA IN THE FORM OF INFORMATION NEEDED TO CARRY OUT THE FUNCTIONS OF MANAGEMENT.”

PEOPLE



DATA



SOFTWARE



HARDWARE



Exercise

1. Describe information systems
2. Give one importance of information system.
3. State two uses of computers in textile industry
4. Explain two scientific use of computers

TOGETHER WE CAN

