

UNIT 1. ELECTRONICS IN THE HOME

Electronics in the home

Electronics began at the start of the twentieth century with the invention of the vacuum tube. The first devices for everyday use were radios, followed by televisions, record players, and tape recorders. These devices were large and used a lot of power.

- 5 The invention of the transistor in 1947 meant that much smaller, low-powered devices could be developed. A wide variety of electronic devices such as hi-fi units and portable radios became common in the home.

- 10 It was not until 1958 that microelectronics began with the development of ICs (integrated circuits) on silicon chips. This led to a great increase in the use of electronics in everyday items. The introduction of the microprocessor allowed electronics to be used for the control of many common processes.

- 15 Microprocessors are now used to control many household items such as automatic washing-machines, dishwashers, central heating systems, sewing machines, and food processors. Electronic timers are found in digital alarm clocks, water heaters, electric cookers, and microwave ovens. Telephones use electronics to provide automatic dialling and answerphone facilities. New entertainment devices have
20 been developed, such as video recorders and CD (compact disc) players.

In the future, electronics are likely to become even more common in the home as multimedia entertainment systems and computer-controlled robots are developed.

Task 4. Fill in the gaps in this table with the help of the text.

Date	Invention	Applications in the home
early 20th century	Vacuum tube	Radios, television, record players, and tape recorders.
1947	transistor	Hi – fi units and portable radios
1958	Microelectronics, Microprocessor Electronic timers	<ul style="list-style-type: none">- ICs (integrated circuits) on silicon chips.- Automatic washing machines, dishwashers, central heating systems, sewing machines, and food processors.- Digital alarm clocks, water heaters, electric cookers, and microwave ovens.
future	Electronics	- multimedia entertainment systems, and computer – controlled robots

Task 5. Use the space below to make a list of ways in which you think electronics may be used in the home in the future.

- Control the electronic devices in the home using gestures or speech.
- Wifi waves used to charge electronic devices in the family.

Writing about the radio

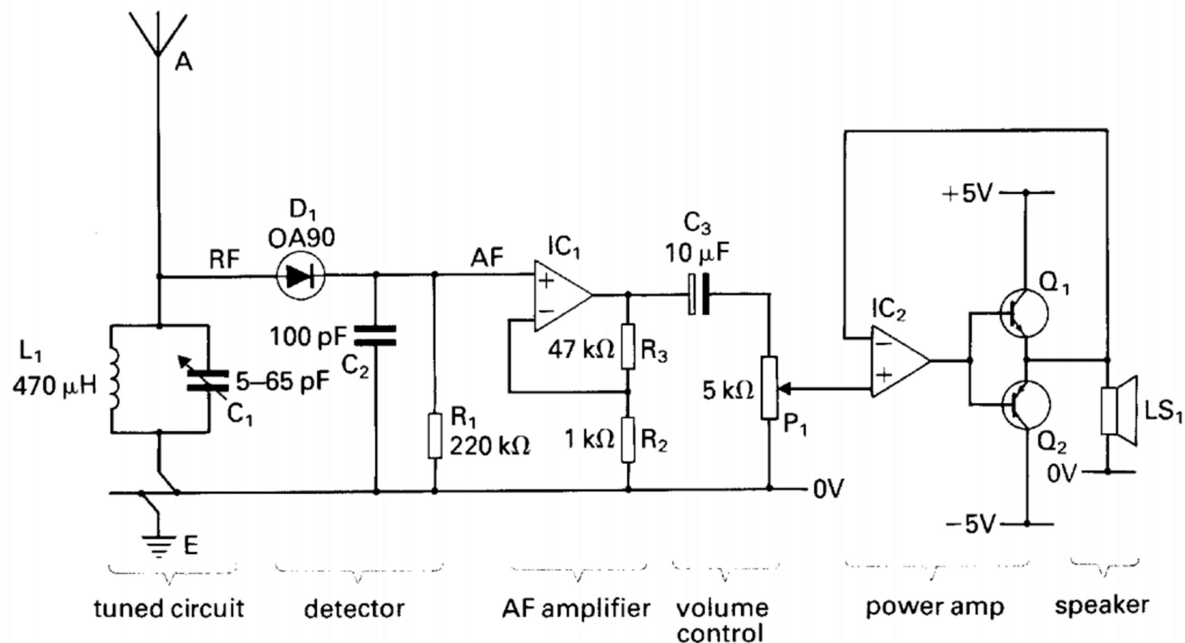


Fig. 2

The radio consists of a tuned circuit, a detector, an AF amplifier, a volume control, a power amp, and a speaker.

The tuned circuit is connected to the detector. The circuit is composed of a four hundred and seventy microhenries inductor which is connected in parallel with a variable capacitor. The tuner can be varied between five and sixty-five variable resistor. The aerials is connected to the top end of the tuner. It is also connected to the positive terminal of the diode in the detector. The bottom end of the tuner is connected to earth via zero voltage supply rail.

The detector is connected to the AF amplifier. The detector is composed of a OA90 diode, a hundred picofarad capacitor and a two hundred and twenty kilohm resistor are connected in series. The AF amplifier is composed of an integrated circuit (IC_1), a forty – seven kilohm resistor and a kilohm resistor. That two resistors are connected to the cathode of the integrated circuit and the positive terminal of the integrated circuit is connected to the output of the detector.

The volume control consists of a ten – microfarad electrolytic capacitor connected in series with a five – kilohm potentiometer (pot). The positive terminal of the capacitor is connected to the output of the AF amplifier and the wiper of the pot is connected to the power amp. The third terminal of the pot is connected to the zero voltage supply rail, which is earthed.

The power amp is composed of an integrated circuit (IC_2), a transistors PNP which is connected in parallel with a transistors NPN. The negative terminal of the integrated circuit (IC_2) is connected to the positive terminal of the speaker and the negative terminal of the speaker is connected to the zero voltage supply rail, which is earthed. The C terminal of the transistors PNP is connected to the five voltage and the E terminal of the transistors NPN is connected to the negative five voltage.