AN EXPERT SYSTEM FOR THE FAULT DIAGNOSIS OF A MONOCHROME TELEVISION RECEIVER

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The process of building an expert system is often called knowledge engineeing. It typically involves a special form of interaction between the expert system builders, called the knowledge and one or more human experts in some problem area. There are many standard of knowledge representing techniques, any one of which can be used alone or in conjunction with others to build expert systems. The two widely used techniques in current expert systems are:

1. Rule based method
2. Frame based method

Frame based knowledge representation uses a network of nodes connected by relations and organized into a hierarchy.

The television fault diagnosis expert system is a menu-driven software package for television fault diagnosis & debugging. The package has been develeped in ~~Turbo~~ Pascal under Unix operating system. Initially when the package is run, a list of options is displayed on the screen and user

has to select one of the options. Accordingly, the fault is diagnosed and debugged. If the user is unable to choose the option, the package helps the user in choosing the option by the hieuristic method. This is continued until the fault is diagnosed. The knowledge base has been reduced to the following three major problems.

1. Completely dead set
2. No sound in the set
3. Only raster in faulty in the set

However, the program is general enough to expand the knowledge-base. The tree-Form of Random Access file used for diagnosis is given in the figure.

REFERENCE(S)

1. TURBO PASCAL BY TOM SWAN

2. A GUIDE TO EXPERT SYSTEM BY WATERMEN

3. DATA STRUCTURE WITH APPLICATION BY TREMBLEY & SORENSON

4. TELEVISION ENGINEERING BY A.M. DHOKE, McGRAW HILL

TV FAULT

DEAD SET   NO SOUND   RASTER FAULT ONLY

SOUND IF   AUDIO AMPLIFIER   DETECRON

VERTICAL SECTION   PICTURE SECTION   HORIZONTAL SECTION

VERTICAL ROLLING   HORI-ZONTAL LINE   TILT

HORI-ZONTAL LINE   HORI-ZONTAL ROLLING   TILT

NO PICTURE   BRIGHTNESS   SNOW

LOW   HIGH   CONSTRAST

LOW   HIGH

POWER SUPPLY   INDICATORS FAULT

SPEAKER DEAD   SCREEN DEAD

LOOSE CONNECTION   SPEAKER DAMAGED

LOOSE CONNECTION   EHT CABLE BURNT

CABLE FAULT   LOOSE CONNECTION   RECTIFIER

TRANSFORMER FAULT   FIETEL FAULTY   DIODES DAMAGED