GEBZE TEKNİK ÜNİVERSİTESİ

ELEKTRONİK MÜHENDİSLİĞİ BÖLÜMÜ

ELEC 334

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HW2

Öğrencinin

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Adı Soyadı : Alperen Arslan

GCC Based Software Development Tools

Linker is a program that generates a single code that the operating system can run by linking the codes produced by a compiler. Today, because of rapidly developing programming needs, a modular approach has been adopted in programming. Accordingly, a large piece of software is divided into small sub-sections and a large program is obtained by processing each piece separately. According to this approach, which is one of the reasons for the emergence of structured programming, function support has come in languages and the same code has been provided to produce different results according to different parameters. Object-oriented programming, which developed later, can be considered as the next generation in this regard. In object-oriented programming, a different approach has been followed by dividing programs into objects. It did not take long for these approaches to reflect on compilers, and in the days when structured programming was first developed, compilers began to use different libraries and external programs to combine these libraries. If the code is divided into multiple parts and each part is produced separately, these parts are combined and a single program. The programs that are responsible for producing the form are called linkers.

Make is a popular automated software compilation tool that is frequently used on Unix-derived operating systems. It enables the compilation of projects with a single command using the settings in the files called Makefile. With the parameters you set in these files, operations such as compiling, installing, removing from the system or deleting the compiled files can be easily handled with a single command. The simplest way to use it is by simply typing the 'make' command in the console. Other frequently used parameters are 'make install', 'make clean'. The 'make' command compiles the project, 'make install' is used to install the compiled project on the system and to delete the compiled project files in 'make clean'. You don't have to use these parameter names or limit your parameters to them, but these are the most used parameters for certain tasks.

Faults, Injection Methods and, Fault Attacks

Embedded systems can be faulted in a variety of ways. There are several ways to block these faults. Glitch Faults are done by creating a surge in voltage. A glitch sensor or DC filter can be used to prevent these faults. Temperature faults are done by giving high temperatures to the embedded system. The severity of these faults can be reduced by using the temperature sensor. Light faults are one of the most powerful faults of recent times. They are made by manipulating the current using photons. Camera flashes can be used for these faults. The effects of these faults can be reduced with metal shields and light sensors in embedded systems. Magnetic faults are made using magnetic impulses. Faults can be temporary or permanent. Temporary faults can be fixed by restarting the system. Permanent faults, on the other hand, are irreversible because they cause permanent damage to embedded systems. Errors created as a result of faults can be classified. In faults, a bit or byte in the system can be changed. Some random or specifically targeted pieces of data can be changed. It

can be done by changing the secret keys in the memory or some pieces of data in the memory can be made unusable by the system.