Automatic Control Systems

Third Edition

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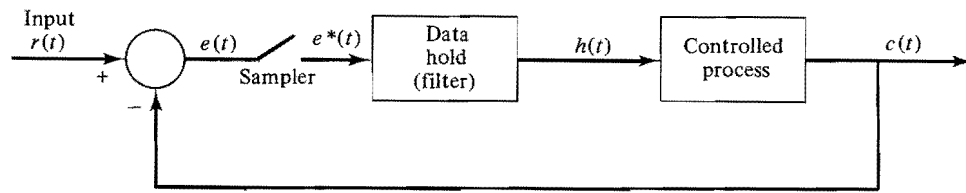Printed in the United States of America

Fig. 1-13. Block diagram of a sampled-data control system.

system. The error signal $e(t)$ is sampled by a sampling device, the sampler, and the output of the sampler is a sequence of pulses. The sampling rate of the sampler may or may not be uniform. There are many advantages of incorporating sampling in a control system, one of the most easily understood of these being that sampling provides time sharing of an expensive equipment among several control channels.

Because digital computers provide many advantages in size and flexibility, computer control has become increasingly popular in recent years. Many airborne systems contain digital controllers that can pack several thousand discrete elements in a space no larger than the size of this book. Figure 1-14 shows the basic elements of a digital autopilot for a guided missile.
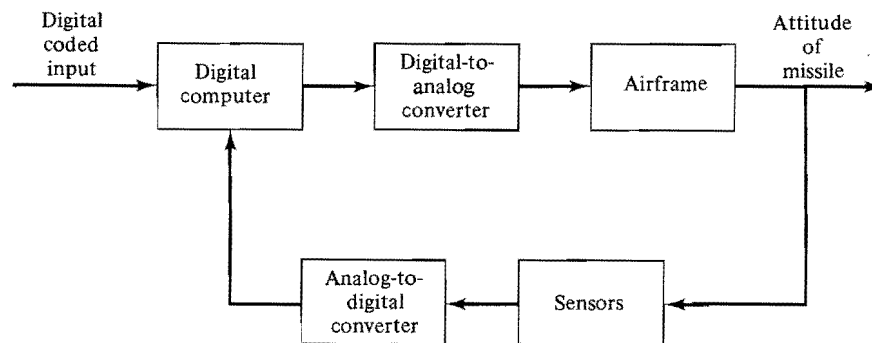

Fig. 1-14. Digital autopilot system for a guided missile.