In operation, the microphone **8** picks up vibrations at the door's inside surface which are the result of the impacts against the door's outside surface from the electronic key **10**. The vibrations are suitably processed and then compared to an access combination for selectively operating a motor or solenoid (not shown) to drive a dead bolt **11** between a locking operative position and an unlocking operative position when the encoded series of impacts matches the access combination.

As shown in FIGS. **3** and **4**, the electronic key **10** includes a tubular housing **13** with a closed rear end **13**A and an open front end **13**B from which extends a tubular leading portion **14**A of an electromagnetic device **14**, e.g. a push-type solenoid, having a reciprocable pneumatic hammer type impeller head **14**B. Interdisposed between the rear end **13**A and the push-type solenoid **14** is a battery **15** and a normally open spring biased switch **16** which is closed on depressing the tubular leading portion **14**A at key **10** against an impact receiving surface i.e. a door. On closing the switch **16**, power is provided to electronic circuitry **17** including a controller **19** for activating the solenoid **14** in accordance with a predetermined code stored in a memory **20**.

The key **10** is designed to impact an encoded series of impulse-like, high energy impacts as a function of the presence of absence of impacts at a predetermined impact rate (see FIG. **5**) or time intervals between consecutive impacts (see FIG. **6**). For example, FIG. **5** shows an access combination 10100101 where 1 is representative of the presence of an impact and 0 is representative of the absence of an impact whilst FIG. **6** shows an access combination 59, 31, 49, 51, and 70 msec corresponding to the time intervals between consecutive impacts.

FIG. **7** shows the electronic mortise lock **7** opened by a data transmitting device **21** including an impact impeller head activated by a touch keypad. FIG. **8** shows the electronic mortise lock **7** opened by a data transmitting device **22** including an impact impeller device activated by remote control. FIG. **9** shows an electronic combination padlock **23** opened by the electronic key **10**.

For use in bidirectional data transmitting systems, FIG. **10** shows a data transmitting/receiving device **25** including a push-type solenoid **14** and a microphone **8**, the former having a reciprocable impeller head **14**B for indirectly impacting against an impact transmissive body **26** via an interior wall **27** of the device.

FIG. **11** shows a data transmission system **28** for transmitting data from a sensing means **29** to a data collection means **31** via an impact impeller device **3** and an impact sensitive transducer **2** disposed on opposite sides of an impact transmissive body **30**.

FIG. **12** shows a block diagram of a data transmission system **33** for transmitting data from a control means **34** to an actuable component **36** via an impact impeller device **3** and an impact sensitive transducer **2** disposed on opposite sides of an impact transmissive body **35**.

FIG. **13** shows a data transmission system **37** for transmitting data between a pair of data processing systems "A" and "B" **38** and **39** via a pair of transmitting/receiving devices **25** disposed on opposite sides of an impact transmissive body **40**.

While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications and other applications of the invention may be made. For example, instead of a microphone, an impact sensitive transducer can be implemented by a piezoelectric device, and the like. Data transmission can be encrypted in accordance with conventional data encryption standards. In addition, for example, in control access applications where access combinations are necessarily matching, they can be periodically updated using conventional algorithm based combination generators hitherto incorporated in vehicle security systems, burglar systems and the like.

What is claimed is:

1. A system for data transmission through an impact transmissive body, said system comprising:

(a) a data transmitting device having a reciprocal impact impeller head for transmitting an encoded series of discrete mechanical impacts to a first surface of the impact transmissive body; and

(b) a data receiving device having an impact sensitive transducer at a second surface of the impact transmissive body substantially opposite to the first surface for picking up vibrations resultant of said series of impacts.

2. The system according to claim **1**, wherein a series of impacts is encoded as a function of the time intervals between consecutive impacts.

3. The system according to claim **1**, wherein a series of impacts is encoded as a function of the presence or absence of impacts at a predetermined impact rate.

4. A system according to claim **1**, wherein

said data transmitting device is a key of a lock and key combination and said data receiving device forms a portion of a lock of the lock and key combination, and

said series of impacts is a coded combination for controlling said lock.

5. The system according to claim **4**, wherein the key is adapted to transmit a coded combination of impacts for controlling said lock.

6. The system according to claim **5**, wherein the system is configured to be hand-held.

7. The system according to claim **6**, wherein the system is activated on being pressed against an impact transmissive body.

8. The system according to claim **4**, wherein

the impact sensitive transducer is adapted to receive a coded combination of impulses from the impact transmissive body through which said impulses are transmitted, and

the received impulses are at a baud rate greater than 20 impacts per second.

9. A system according to claim **1**, wherein said data transmitting device is associated with a sensing device, said data receiving device is associated with a data collector, and said series of impacts encodes a sensed value or quality.

10. A system according to claim **1**, wherein said data transmitting device is associated with a controller and said data receiving device is associated with a series of impacts, which encode a control signal.

11. A system according to claim **1**, wherein

the system is an access control system, and

said data transmitting device is adapted to transmit to the impact transmissive body a coded access controlling code encoded in a specific series of impacts and said data receiving device forms part of an access control module, permitting access upon receipt of said specific series of impacts.

12. A data transmitting device comprising:

a reciprocable impact impeller head for transmitting a data-encoding series of discrete mechanical impacts to a surface of an impact transmissive body through which said data-encoding series is further transmitted;