CLAIMS

1. A method for remotely programming a programmable device (35) designed to provide an expected sensitive result (45), the method comprising:
- transmitting a first program code (41) to the programmable device (35), said first program code (41) being configured to get at least one distinctive data (35d) unique and physically inherent to the programmable device (35),
- retrieving said distinctive data (35d),
- generating a second program code (42) based on said retrieved distinctive data (35d), wherein the second program code (42) is altered and configured to be reconstituted only when it is executed on the programmable device (35) having produced the distinctive data (35d), using the distinctive data (35d) of said programmable device (35), to provide the expected sensitive result (45); and
- transmitting said second program code (42) to the programmable device (35), so as to load the second program code (42) into the programmable device (35).

2. The method of claim 1, wherein the second program code (42) provides a result different from the expected sensitive result (45) if executed on any other device.

3. The method of claim 1 or 2, wherein the second program code (42) is a functional program code configured to be executed on the programmable device (35) to provide the expected sensitive result (45).

4. The method of any of the preceding claims, wherein the second program code (42), once loaded into the programmable device (35), results in the programmable device (35) acquiring a functionality for processing input data (44) received from a user unit (20) and providing a response or result as the expected sensitive result (45).

5. The method of any of the preceding claims, wherein the first program code (41) is a netlist, a source code or a machine code.

6. The method of any of the preceding claims, wherein the second program code (42) is a netlist, a source code or a machine code.

7. The method of any of the preceding claims, wherein the first program code (41) and the second program code (42) are designed by a provider (10) remotely linked to the programmable device via (35) a communication channel (1).

8. The method of claim 7, wherein in the event that the communication channel (1) is at least partly provided by an untrusted communication channel, the first program code (41) is transmitted to the programmable device (35) in a secure manner so as to ensure authenticity and integrity of the first program code (41).

9. The method of any of preceding claims, wherein the expected sensitive result (45) is a second key (K2), preferably an activation key or a cryptographic key.

10. The method of any of the preceding claims, wherein said distinctive data (35d) results from or is derived from a physically unclonable function (PUF) applied to at least one component (35e) of the programmable device (35).

11. The method of any of preceding claims, wherein the second program code (42) is transformed by an invertible function depending on said distinctive data (35d).

12. The method of claim 10, wherein the invertible function is a mathematical or a logical function.

13. The method of any of the preceding claims, wherein the second program code (42) is transformed by replacing at least one program code portion, retrievable from said distinctive data (35d), by an altered portion.

14. The method of any of the preceding claims, wherein at least one of the transmitting and retrieving steps is secured by at least one of an authentication process and an encryption process.

15. A programmable device (35) designed to be remotely programmed to provide an expected sensitive result (45), the device comprising:

- at least one distinctive data (35d) unique and physically inherent to the programmable device (35),
- a communication interface (35a) configured to:
    - receive a first program code (41) configured to get said distinctive data (35d);
    - transmit said distinctive data (35d); and
    - receive a second program code (42);
- at least one memory (35b) for storing said first and second program codes (41, 42); and
- a processor (35c) or a hardware state machine configured to:
    - executed said first program codes (41) to get said distinctive data (35d); and
    - execute said second program code (42), wherein the second program code (42) is altered and configured to be reconstituted only when executed on the programmable device (35) using said distinctive data (35d), to provide the expected sensitive result (45).

16. A provider (10) for remotely providing program codes (41, 42) to at least one programmable device (35), the provider comprising:
- a program code generator (14) configured to:
    - generate a first program code (41) configured to get at least one distinctive data (35d) unique and physically inherent to the programmable device (35); and
    - generate a second program code (42) based on said distinctive data (35d), wherein the second program code (42) is altered and configured to be reconstituted only when it is executed on the programmable device (35) having produced the distinctive data (35d), using the distinctive data (35d) of said programmable device (35), to provide the expected sensitive result (45); and
- a communication interface (11) configured to:
    - send said first program codes (41) to the programmable device (35);
    - receive said distinctive data (35d) from the programmable device (35); and
    - send said second program code (42) to the programmable device (35).