Consider a laundry card vending machine system composed of the following elements and functional requirements: A laundry debit card which holds a balance on it, a card writer which accepts a currency amount and adds that amount to the balance on the card, a card accepting mechanism which accepts the card and deducts a predetermined amount, and a laundry machine which is connected to that mechanism and starts when that amount is deducted.

Initial security requirements state the card balance must only be modified by the card currency machine and card mechanism attached to the laundry machine as described above. Requirements also state that it should not be possible to activate a laundry machine without a card or with a counterfeit card, and that the currency accepted by the vending machine should be legitimate and kept secure until it is removed by the company maintaining the system.

Given this high level design and initial requirements, discuss the derived requirements and possible security mechanisms that may need to be put in place to provide security in such a system.