# SOFTWARE ENGINEERING CS 487
# Participation 4

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**Q1. Describe the authentication protocol for an ATM**
**– Explain why it is less than perfectly secure.**
**– And why it is less than perfectly easy to use.**
**– And why it is OK for both of these to be true.**
**– Describe a mechanism for the ATM to assess the awareness of the human user during authentication.**

**=>**
The authentication protocol for an ATM is as follows

1. The user inserts an ATM card.
2. Inserts pin for verification.
3. card and pin checked by the validator.
4. if valid, transactions are allowed.

**– Explain why it is less than perfectly secure.**

1. Problems like pin skimming and card cloning
2. Potential technological exploits
3. Card theft

**– And why it is less than perfectly easy to use.**

1. Risk of forgetting pin.
2. Additional steps of card insertion.
3. Memory dependency on PIN.

**– And why it is OK for both of these to be true.**
Because balancing usability and security is crucial
**-Describe a mechanism for the ATM to assess the awareness of the human user during authentication.**

1. audio video conformation during authentication
2. Timed responses to prompts
3. Integration for biometric verification
4. Multistep verification for added awareness

**Describe the role of automated awareness in engineering acceptable safety for a fully self-driving car.**
**– Explain the role of this awareness in managing exceptions.**
**– Explain why it is less than perfectly safe.**
**– Use risk assessment to justify the imperfect design.**
**– Describe a strategy for safely testing the car design's effectiveness.**

**=>**
**Role in safety:**

1. checking surroundings using sensors and cameras
2. Identifying hazards and obstacles
3. Real-time decision-making for safe navigation

**– Explain the role of this awareness in managing exceptions.**
1. detects abnormal scenarios and triggers appropriate responses
2. Engages fail safe mechanism
3. Dynamic response to unexpected events.

**– Explain why it is less than perfectly safe.**

1. environmental challenges

2. Limitations in complex scenarios
3. Risk associated with involving tech

**– Use risk assessment to justify the imperfect design.**

1. Balance safety and technological upgrades
2. Checking uncertainty in diverse driving conditions
3. Continuous improvement through design and updates

**– Describe a strategy for safely testing the car design's effectiveness.**

1. Controlled real-world testing in different environments.
2. Gradual implementation with extensive monitoring and feedback loops.