Alejandro Jauregui

Use Case Specification

Use Case ID: *Use Case #SP1*
Use Case Name: **Supervisor Turns on Pump (within normal pump behavior limits)**
Relevant Requirements: * 1.3. References , Use Case Specification.docx : *(Use Case #SP1)*
Primary Actor: Supervisor
Pre-conditions: Supervisor must successfully login to the system with a username and password.
Post-conditions: The pump is switched on and will pump water out of the mineshafts, until further interaction from the operator, supervisor, or by the sensor.
Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor takes control of the pump and switches it on.
4. The Supervisor logs out of the system when finished, and the system log in returns to the home state.

Extensions or Alternate Flows: This use case does not extend any use cases.

Exceptions: The system can be malfunctioning, which won't allow the Supervisor to log in, or let alone switch the pump on. In addition, the pump could be broken, removing pump functionality.

Related Use Cases: There aren't use cases that are performed right after/before this use case.

Use Case Specification

Use Case ID: *Use Case #SP2*
Use Case Name: **Supervisor Turns off Pump (within normal pump behavior limits)**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #SP2)*
Primary Actor: Supervisor
Pre-conditions: Supervisor must successfully login to the system with a username and password.
Post-conditions: The pump switched off and will stop water from being pumped, until further interaction from the operator, supervisor, or by the high water level sensor.
Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor takes control of the pump and switches it off.
4. The Supervisor logs out of the system when finished, and the system returns to the home state.

Extensions or Alternate Flows: This use case does not extend any use cases

Exceptions: The system can be malfunctioning, which won't allow the Supervisor to log in, or let alone switch the pump off. In addition, the pump could be broken, removing pump functionality.

Related Use Cases: There aren't use cases that are performed right after/before this use case.

Use Case Specification

Use Case ID: *Use Case #SP3*
Use Case Name: **Supervisor Turns on Pump (outside normal pump behavior)**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #SP3)*
Primary Actor: Supervisor
Pre-conditions: Supervisor must successfully login to the system with a username and password.
Post-conditions: The pump will pump water past the low water level limit set by the sensor for automatic behavior of the pump system. Water will continue to be pumped out of the mineshafts and will need the supervisor to be present to reset the system to re establish the automatic behavior. This is important because the pump will keep working until the Supervisor resets it. Since the system was overridden, it can't turn it off, which will cause it to possibly destroy the pump.

Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor takes control of the pump and switches it on, past the low water level limit.
4. The Supervisor then, can log out of the system when finished, and the system returns to the home state.

Extensions or Alternate Flows: This case extends the use case of "supervisor resetting the system". As explained previously, after the supervisor overrides the systems behavior, it must reset the system, right after this use case. It does this to reset the automatic behavior. It can't do anything until it resets the system.

Exceptions: The system can be malfunctioning, which won't allow the Supervisor to log in, or let alone switch the pump on. In addition, the pump could be broken, removing pump functionality. In addition to this, this extending use case can be non-functioning and only allow regular use of the pump, and not actualize the override actions

Related Use Cases: When the Supervisor successfully overrides the system and turns the pump on outside the limits range, it must reset the system right after the override. So the use case "reset the system" is a related use case that must be performed after this current use case.

Use Case Specification

Use Case ID: *Use Case #SP4*
Use Case Name: **Supervisor Turns off Pump (outside normal pump behavior)**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #SP4)*
Primary Actor: Supervisor
Pre-conditions: Supervisor must successfully login to the system with a username and password.
Post-conditions: The pump will stop pumping, water will be past the high water level limit set by the sensor for automatic behavior of the pump system. Water will continue to fill in the mineshafts and will need the supervisor to be present to reset the system to re establish the automatic behavior. This is important because the pump will not do anything until the Supervisor resets it. Since the system was overridden, it can't turn it back on, which will cause safety hazards to workers, equipment damage and possible mineshafts to cave in and be destroyed.

Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor takes control of the pump and switches it off past the high water level limit.
4. The Supervisor then, can log out of the system when finished, and the system returns to the home state. The Supervisor must reset the System right after this use case.

Extensions or Alternate Flows: This case extends the use case of supervisor resetting the system. As explained previously, after the supervisor overrides the systems behavior, it must reset the system, right after this use case. It does this to reset the automatic behavior. It can't do anything until it resets the system.

Exceptions: The system can be malfunctioning, which won't allow the Supervisor to log in, or let alone switch the pump off. In addition, the pump could be broken, removing pump functionality. In addition to this, this extending use case can be non-functioning and only allow regular use of the pump, and not actualize the override actions

Related Use Cases: When the Supervisor successfully overrides the system and turn the pump off outside the limits range, it must reset the system right after the override. So the use case "reset the system" is a related use case that must be performed after this current use case.

Use Case Specification

Use Case ID *: Use Case #OP1*
Use Case Name: **Operator turns the pump on**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #OP1)*
Primary Actor: Operator
Pre-conditions: Operator must successfully login to the system with a username and password.
Post-conditions: The pump will pump water out of the mineshafts until the low water sensor reads the minimal water level and turn the pump off.

Basic Flow or Main Scenario:

1. The Operator is at the system, enters their username and password to gain access to their account.
2. The Operator logs into the system successfully.
3. The Operator takes control of the pump and switches it on, only in between the low and high water level limits.
4. The Operator then, can log out of the system when finished, and the system returns to the home state.

Extensions or Alternate Flows: This use case doesn't extend to any other use case.

Exceptions: The system can be malfunctioning, which won't allow the Operator to log in, or let alone switch the pump on. In addition, the pump could be broken, removing pump functionality.

Related Use Cases: There aren't any use cases that right after/before, follow this particular use case.

Use Case Specification

Use Case ID *: Use Case #OP2*
Use Case Name: **Operator turn the pump off**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #OP2)*
Primary Actor: Operator
Pre-conditions: Operator must successfully login to the system with a username and password.
Post-conditions: The pump will stop pumping water out of the mineshafts until the high water sensor reads the max water level and turn the pump on.

Basic Flow or Main Scenario:

1. The Operator is at the system, enters their username and password to gain access to their account.
2. The Operator logs into the system successfully.
3. The Operator takes control of the pump and switches it off, only in between the low and high water level limits.
4. The Operator then, can log out of the system when finished, and the system returns to the home state.

Extensions or Alternate Flows: This use case doesn't extend to any other use case.

Exceptions: The system can be malfunctioning, which won't allow the Operator to log in, or let alone switch the pump off. In addition, the pump could be broken, removing pump functionality.

Related Use Cases: There aren't any use cases that right after/before, follow this particular use case.

Use Case Specification

Use Case ID: *Use Case #R1*
Use Case Name: **Supervisor resets system(after turning pump on past limit)**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #R1)*
Primary Actor: Supervisor
Pre-conditions: Supervisor has overridden the system by turning pump on, past the low water level limit. Supervisor has to be logged into the system.
Post-conditions: The system is re established its automatic behavior, which consists of shutting the pump on and off depending on the water levels, read by the high and low water level sensors.
Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor resets the Mine Shaft Pump System.

Extensions or Alternate Flows: This use case doesn't extend to any other use case.

Exceptions : The reset functionality is broken, unable to return the system to normal working order.

Related Use Cases: The use case "supervisor turns pump on outside the limits", occurs right before the supervisor were to reset the system.

Use Case ID: *Use Case #R2*
Use Case Name: **Supervisor resets system(after turning pump off past limit)**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #R2)*
Primary Actor: Supervisor
Pre-conditions: Supervisor has overridden the system by turning pump off, past the high water level limit. Supervisor has to be logged into the system.
Post-conditions: The system is re established its automatic behavior, which consists of shutting the pump on and off depending on the water levels, read by the high and low water level sensors.
Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor resets the Mine Shaft Pump System.

Extensions or Alternate Flows: This use case doesn't extend to any other use case.

Exceptions : The reset functionality can be broken, unable to return the system to normal working order.

Use Case Specification

Related Use Cases: The use case “supervisor turns pump off outside the limits”, occurs right before the supervisor were to reset the system.

Use Case ID: *Use Case #sLog1*
Use Case Name: **Supervisor reads Logs**
Relevant Requirements: * 1.3. References , Use Case Specification.docx : *(Use Case #sLog1)*
Primary Actor: Supervisor
Pre-conditions: Supervisor has to be logged into the system.
Post-conditions: The Supervisor has read any recordings in the log from the past 30 days.
Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor gains access to the logs and can read them successfully.
4. The Supervisor logs out of the system.

Extensions or Alternate Flows: This use case doesn’t extend to any other use case.

Exceptions : The Persistent Log is unable to be accessed.

Related Use Cases: There aren’t any use cases that right after/before, follow this particular use case.

Use Case ID: *Use Case #sLog2*
Use Case Name: **Supervisor adds Note to Log**
Relevant Requirements: * 1.3. References , Use Case Specification.docx :*(Use Case #sLog2)*
Primary Actor: Supervisor
Pre-conditions: Supervisor has to be logged into the system.
Post-conditions: Supervisor has added a note to any specific log event that happened within 24 hours.

Basic Flow or Main Scenario:

1. The Supervisor is at the system, enters their username and password to gain access to their account.
2. The Supervisor logs into the system successfully.
3. The Supervisor gains access to the logs.
4. The Supervisor adds a note to any specific log event that happened within 24 hours.
5. Supervisor logs out of the System.

Extensions or Alternate Flows: This use case doesn’t extend to any other use case.

Exceptions : The Persistent Log is unable to be accessed.

Related Use Cases: There aren't any use cases that right after/before, follow this particular use case.

Use Case ID: *Use Case #oLog1*
Use Case Name: **Operator reads Methane Log recordings**
Relevant Requirements: * 1.3. References, Use Case Specification.docx : *(Use Case #oLog1)*
Primary Actor: Operator
Pre-conditions: Operator has to be logged into the system.
Post-conditions: The Operator has read any methane sensor recordings in the log from the last 24 hours.
Basic Flow or Main Scenario:

1. The Operator is at the system, enters their username and password to gain access to their account.
2. The Operator logs into the system successfully.
3. The Operator gains access to the methane logs.
4. The Operator can read any methane sensor recordings in the log from the last 24 hours.
5. Operator logs out of the System.

Extensions or Alternate Flows: This use case doesn't extend to any other use case.

Exceptions : The Persistent Log is unable to be accessed.

Related Use Cases: There aren't any use cases that right after/before, follow this particular use case.