ESD-E2020
Cashier Touch Display

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SDU

- ▶ System overview
- ▶ Use Case
- ▶ Class Diagram
- ▶ Interaction
- ▶ Final Remarks

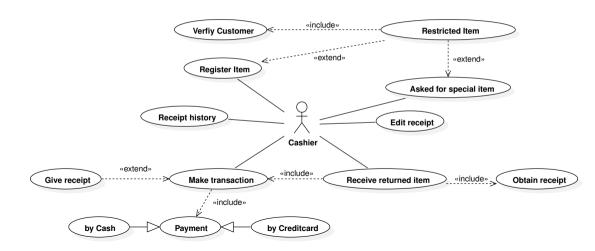```
Credit card   Central box   Terminal
payment service   (database)

┌─ Example station ───┐
│   │
│ Card reader ───────►┌──────────┐──────► Receipt printer   │
│   │   │   │
│ Customer numpad ───►│   │──────► Customer display │
│   │ Station │   2 line lcd   │
│ COA numpad ────────►│   box   │──────► COA display   │
│   │   │   7" LCD touch   │
│ Barcode scanner ───►│   │   │
│   └──────────┘   │
│   ▲   │
│   └────────────────────────────── │
└──┘
```

**«abstract»**
**Task**

- handle: std::thread
- is_alive: std::atomic<bool> = false
- is_muted: std::atomic<bool> = true
- events_in: std::queue<Event>
- events_out: std::queue<Event>&
- mtx_events_in: std::mutex
- mtx_events_out: std::mutex&

+ Task(name, events_out&, mutex_out&)
+ start(): bool
+ kill(force : bool = false)
+ mute()
+ unmute()
+ sendEventToTask(e : Event)
+ getEventFromQueue(queue&, mutex&) : Event*
+ sendEventFromTask(e : Event)
# readLatestEvent(blocking : bool): Event*
# init(): bool
# run(): void = 0

start() creates an std::thread which continuously invokes the run() method.

a muted task ignores sendEventFromTask().

**CashierTouchDisplayTask**
# templates: std::vector<Layout>
- state: State
# init(): bool
# run(): void
# verifyAge(): int

**«enumeration»**
**States**
NO_TRANSACTION
TRANSACTION
EDIT_RECIPE
CARD_TRANSACTION

**«enumeration»**
**Events**
CARD
CANCEL
EDIT
DONE
OK
START
SCAN

**«Interface»**
**TouchDisplayBackend**
- signal: Singals
+ addModel(Modal): void
+ deployLayout(layout): void

**Layout**
- elements: std::vector<Element>
- width, height: int
+ addElement(Element): void

**«enumeration»**
**Type**
Button
Receipt

**Button**
+ text: string
+ callback: (*)(void*)
+ data: void*

**Element**
+ start_x,start_y,end_x,end_y: int
+ type: Type

**Receipt**
+ receipt: Receipt*

**«enumeration»**
**Signals**
START
CANCEL
CARD_TRANSACTION
RECEIPT_LINE
EDIT
NEW_AMOUNT
DONE

**Modal**
+ text: string
+ buttons: vector<Layout::Button>

**Button**
- rectangle: SDL_Rect
- color: SDL_Color
- texture: SDL_Texture
- callback: void (*)(void*)
- data: void*
+ isPressed(SDL_Event*): bool

**SDL2**
- window: SDL_Window*
- renderer: SDL_Renderer*
- elements: vector<GraphicsElements*>
- width,height: int
+ clear(): void
+ elementToSDL(Layout::Element,double,double): GraphicsElement*

**«Interface»**
**GraphicsElement**
+ render(SDL_Renderer*): void
+ process(SDL_Event*): void

**SFML**
+ field: type
+ method(type): type

**WebServer**
+ field: type
+ method(type): type

**QT**
+ field: type
+ method(type): type

Not Implemented

**DynamicReceipt**
- receipt: Receipt*
- font: TTF_Font*
- rect: SDL_Rect
- lineToTexture(ReceiptLine,SDL_Renderer): SDL_Texture*

| StationBox | :CashierTouchDisplayTask | :TouchDisplayBackend |
|---|---|---|

Legend:
- No Transaction
- Transaction
- Card Transaction
- Edit Reciept

Start ← Press Start — Optionally start t...

Start, Receipt → Update Layout →

Scan → Update Layout →

Cancel ← Press Cancel — Optionally cancel...

Cancel → Update Layout →

StationBox | :CashierTouchDisplayTask | :TouchDisplayBackend

: No Transaction
☐ Transaction
☐ Card Transaction
☐ Edit Reciept

| StationBox | Card | | Press Card Tran... | Optionally start c... |
| | Card | | Update Layout | |
| | Cancel | | Press Cancel | Optionally cancel ca... |
| | Cancel | | Update Layout | E1 |
| | Ok | | Update Layout | E2 |

No Transaction
Transaction
Card Transaction
Edit Reciept

StationBox

:CashierTouchDisplayTask

:TouchDisplayBackend

Scan

Update Layout

Verify Age

Update layout

Verify Age,True

Ok

E1

Cancel

E2

Verify Age,False

- ► Backend
- ► Refactoring