

Made by:
Wigger Boelens
Rolf Verschuuren
Stefan van den Berg



Technische Universiteit
Eindhoven
University of Technology

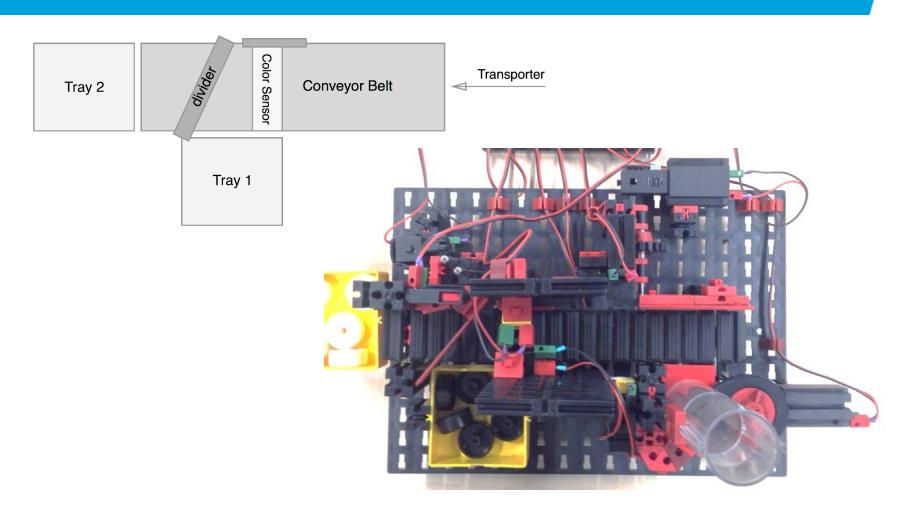
Where innovation starts

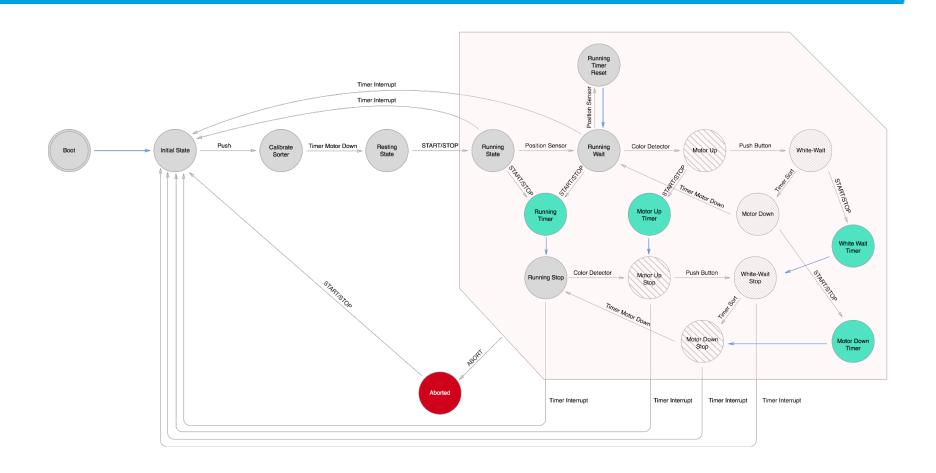
Machine Design

- Reliability
- Speed
- Robustness
- Accessibility
- Floor space
- Complexity
- Amount of parts

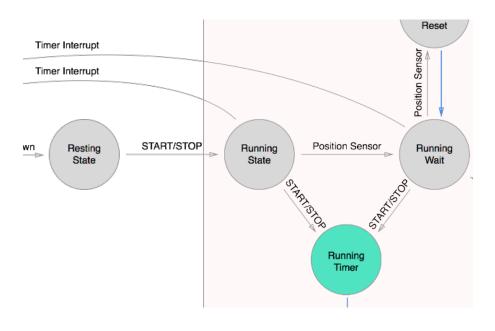


Machine Design









```
176
        void running() {
177
            timerManage();
178
            //check if we need to pause
179
            $startStop = getButtonPressed(0);
            if ($startStop == 1) {
180
181
                //stop the feeder engine
182
                storeData(0, "outputs", FEEDERENGINE);
                //set the timer
183
184
                setCountdown(BELT);
185
                //update the state
186
                state = 9;
187
                runningTimer();
188
            //check if a disk is at the position
189
190
            // detector
            $position = getButtonPressed(7);
191
192
            if ($position == 1) {
193
                //reset the countdown, because a
194
                // disk was detected
                setCountdown(BELTROUND + BELT);
195
196
                //update the state
197
                state = 4;
                runningWait();
198
199
200
            //loop
201
            running();
202
```



```
void running() {
176
177
            timerManage();
178
            //check if we need to pause
179
            $startStop = getButtonPressed(0);
180
            if ($startStop == 1) {
181
                //stop the feeder engine
182
                storeData(0, "outputs", FEEDERENGINE);
183
                //set the timer
184
                setCountdown(BELT);
                //update the state
185
186
                $state = 9;
187
                runningTimer();
188
            //check if a disk is at the position
189
190
            // detector
191
            $position = getButtonPressed(7);
192
            if ($position == 1) {
193
                //reset the countdown, because a
                // disk was detected
194
195
                setCountdown(BELTROUND + BELT);
196
                //update the state
197
                $state = 4;
198
                runningWait();
199
200
            //loop
            running();
201
202
```

```
198 function running()
200
        timerManage();
201
202
        //check if we need to pause
        $startStop = getButtonPressed(0);
203
        if ($startStop == 1) {
204
205
            //stop the feeder engine
206
            $temp = 0;
207
            storeData($temp, 'outputs', FEEDERENGINE);
208
            unset($temp);
209
210
            //exit after 1 rotation of the belt
            setCountdown(BELT * 10);
211
212
            //update the state
213
214
            $state = 9;//TODO: echte state
215
            storeData($state, 'state', 0);
216
            unset($state);
217
            runningTimer();
218
219
220
221
        unset($startStop);
222
223
        //check if a disk is at the position detector
224
        $position = getButtonPressed(7);
225
        if ($position == 0) {
226
            //reset the countdown, because a disk was just detected
227
            setCountdown(COUNTDOWN);
228
229
            //update the state
230
            state = 4;
231
            storeData($state, 'state', 0);
232
            unset($state);
233
            runningWait();
234
235
        unset($position);
236
237
        //loop
238
        running();
239 }
```

```
Assembly
197 //state 3
198 function running()
                                                                                             BRS timerManage
200
        timerManage();
                                                                    265 running:
201
202
        //check if we need to pause
                                                                                             PUSH R3
        $startStop = getButtonPressed(0);
                                                                   266
                                                                    267
                                                                                             LOAD R3 0
                                                                   268
                                                                                             BRS _pressed
                                                                   269
                                                                                             PULL R3
                                                                   270
                                                                                             SUB SP 5
                                                                    271
                                                                                             PULL R3
                                                                   272
                                                                                             ADD SP 4
        if ($startStop == 1) {
                                                                                             CMP R3 1
204
                                                                   273
                                                                    274
                                                                                             BEQ conditional3
            //stop the feeder engine
205
                                                                   289 conditional3:
206
                                                                                             LOAD R4 0
            temp = 0;
207
            storeData($temp, 'outputs', FEEDERENGINE);
                                                                   290
                                                                                             STOR R4 [GB +outputs + FEEDERENGINE]
208
            unset($temp);
                                                                    291
209
210
             //exit after 1 rotation of the belt
                                                                                             PUSH R5 ; reset timer
                                                                   292
                                                                   293
                                                                                             PUSH R4
                                                                   294
                                                                                             LOAD R5 -16
                                                                   295
                                                                                             LOAD R4 0
                                                                   296
                                                                                             SUB R4 [R5+13]
                                                                   297
                                                                                             STOR R4 [R5+13] ;set timer
                                                                   298
                                                                                             LOAD R4 BELT * 10
                                                                   299
                                                                                             STOR R4 [R5+13]
                                                                    300
                                                                                             PULL R4
211
            setCountdown(BELT * 10);
                                                                   301
                                                                                             PULL R5
212
213
            //update the state
                                                                                             LOAD R4 9 ;$state = 9
214
            $state = 9;//TODO: echte state
                                                                    302
215
            storeData($state, 'state', 0);
                                                                    303
                                                                                             STOR R4 [GB +state + 0]
216
            unset($state);
                                                                    304
217
                                                                                             BRA runningTimer
218
            runningTimer();
                                                                    305
219
220
                                                                   275 return3:
221
        unset($startStop);
```

Machine Design

- Reliability
- Speed
- Robustness
- Accessibility
- Floor space
- Complexity
- Amount of parts



Summary



/ name of department 7-4-2015 PAGE 8