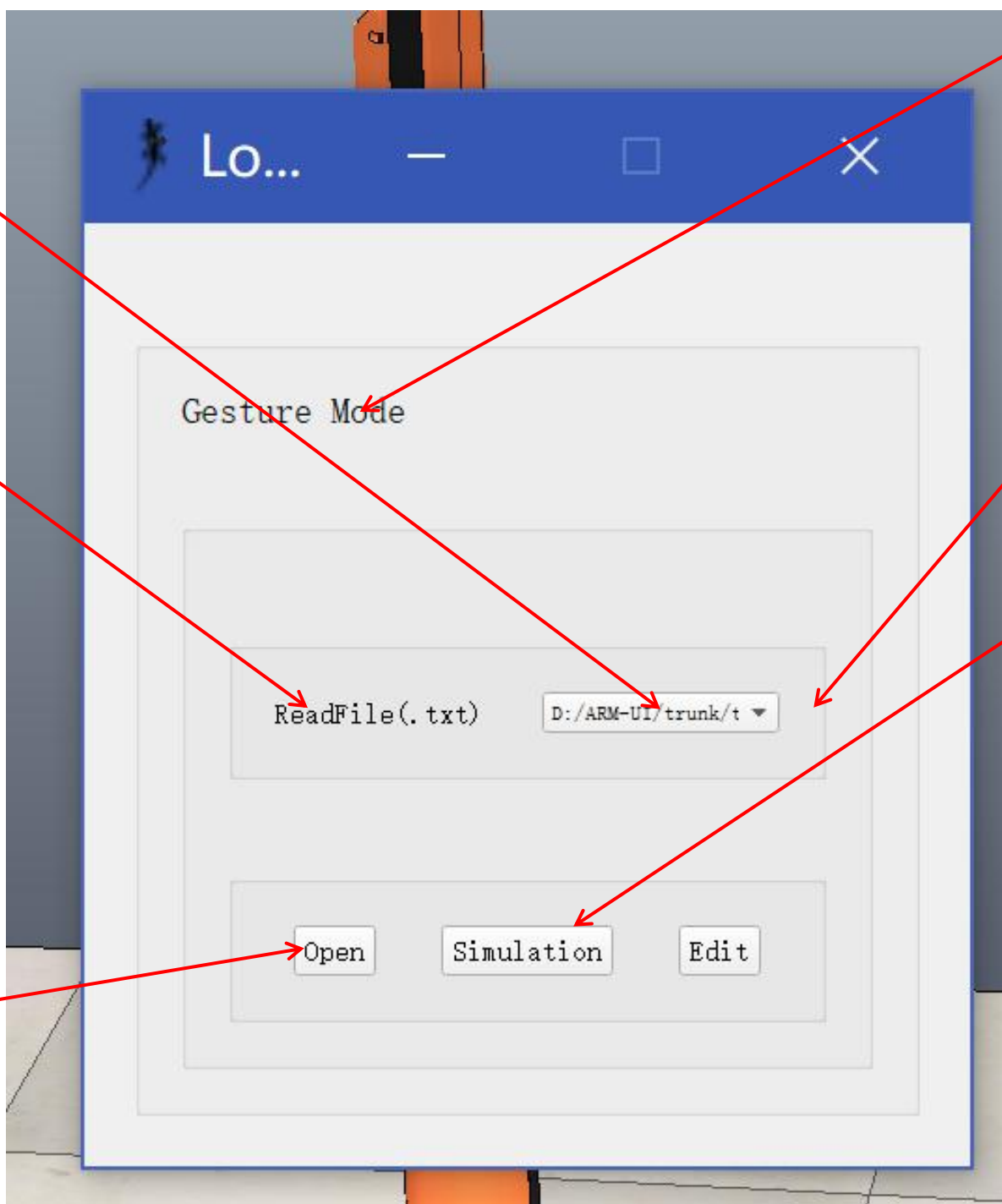


该栏默认为空白，这样每次重新打开文件时，都要再一步一步寻找，能否记录上次打开文件的路径作为默认值？

改成，OpenFile

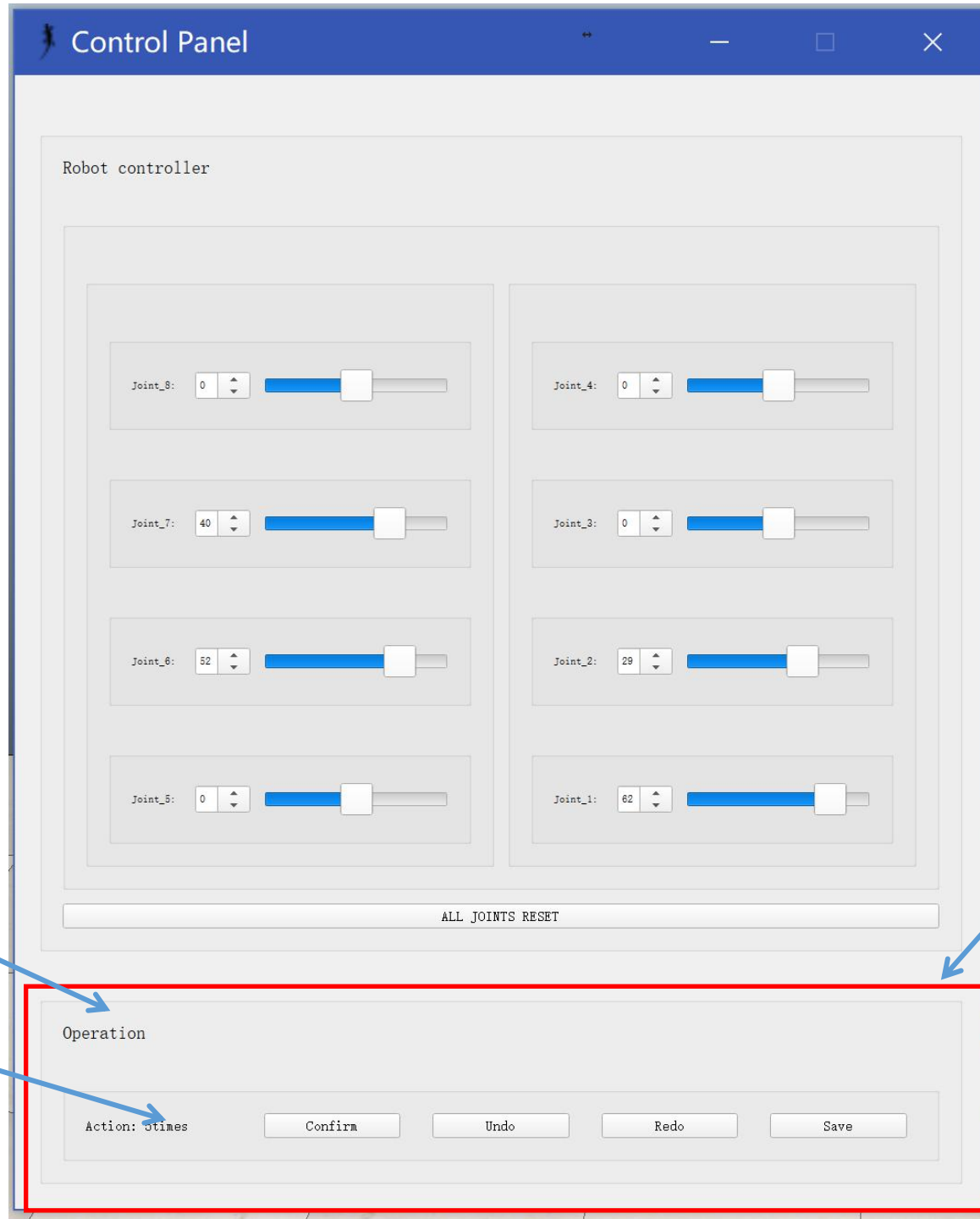
在上一行文件路径有效后，激活此按钮，否则点击无效。激活后点击，做两件事，读取数据和检查数据，如有错误，需提示



LoadFile

此处加一按钮，Browser，只负责寻找文件路径

在成功打开文件确认数据有效后，激活此按钮，否则点击无效。



改成  
ActionsDesign

去掉times

此区域放在顶部，文字和按钮放大，突出重点。最后的save按钮可以横向独占一行，以表明其特殊性。



actionCount应从文件中读取。

```
118 function editFileUI()
119     if PATH == nil then
120         return
121     end
122     actionRead(PATH)
123     simExtCustomUI_hide(loadFileUI_index)
124     currentActionIndex = actionCount --?????action???
125     xml= string.format('<ui title="%s" closeable="true" resizable="false" activate="false" onClose="destroyEditFile'
126         <group>
127             <label style="* {font-size: 20px;}" text="Operation"/>
128             <group layout="hbox">]]..
129                 string.format('<label style="* {font-size: 15px;}" text="Action: %d times" id="41"/>', actionCount).
130                 <button text="Confirm" style="* {font-size: 15px;margin-left: 10px; margin-right: 10px; padding: 5px}
131                 <button text="Undo" style="* {font-size: 15px;margin-left: 10px; margin-right: 10px; padding: 5px}"
132                 <button text="Redo" style="* {font-size: 15px;margin-left: 10px; margin-right: 10px; padding: 5px}"
133                 <button text="Save" style="* {font-size: 15px;margin-left: 10px; margin-right: 10px; padding: 5px}"
134             </group>
135         </group>
136     </ui>
137 ]]
138 editFileUI_index = simExtCustomUI_create(xml) -- file-edit UI
139 for i = 1, jointNum, 1 do
140     currentJointAngle[i] = action[currentActionIndex][i]
141     simSetJointPosition(jointHandle[i], currentJointAngle[i]*math.pi/180)
142     simExtCustomUI_setSpinboxValue(editFileUI_index, i, currentJointAngle[i]) --??spinbox??
143     simExtCustomUI_setSliderValue(editFileUI_index, i + 20, currentJointAngle[i]) --??slider??
144 end
145 end
146
```

默认为最后一个action。

```

215     end
216 elseif(id == 121) then --undo operation
217     if(currentActionIndex > 1) then
218         currentActionIndex = currentActionIndex - 1
219         setValues(action[currentActionIndex])
220         for i = 1, jointNum, 1 do
221             simExtCustomUI_setSpinboxValue(ui, i, action[currentActionIndex][i]) --??spinbox??
222             simExtCustomUI_setSliderValue(ui, i + 20, action[currentActionIndex][i]) --??slider??
223         end
224     end
225 elseif(id == 122) then --redo operation
226     if currentActionIndex < finalActionIndex then
227         currentActionIndex = currentActionIndex + 1
228         setValues(action[currentActionIndex])
229         for i = 1, jointNum, 1 do
230             simExtCustomUI_setSpinboxValue(ui, i, action[currentActionIndex][i]) --??spinbox??
231             simExtCustomUI_setSliderValue(ui, i + 20, action[currentActionIndex][i]) --??slider??
232         end
233     end
234 end
235

```

此函数最后加一判断语句，若剩余action数为零，把undo按钮禁用。另外，undo按钮初始状态也应为禁用

此函数最后加一判断语句，若剩余action数大于零，把undo按钮启用。redo按钮初始状态也应为禁用，只有undo按钮按过后才有效。

```
250 function actionSave()  
251     -- body  
252     if PATH == "" then  
253         PATH = simFileDialog(sim_filedlg_type_save,"SAVE","","","text file","txt")  
254     end  
255     print(PATH)  
256     print("currentActionIndex", currentActionIndex)  
257     if PATH ~= nil then  
258         file = io.open(PATH, "w")  
259         for i=1, currentActionIndex, 1 do  
260             local s = ""  
261             for j=1, jointNum, 1 do  
262                 s = s..action[i][j]  
263                 s = s.." "  
264             end  
265             s = s.."\n"  
266             file:write(s)  
267         end  
268         io.close(file)  
269     end  
270     print("save success")  
271 end
```

此处加ELSE判断



```
273 function actionRead(ReadFile)
274     print(ReadFile)
275     actionCount = 0
276     for line in io.lines(ReadFile) do
277         actionCount = actionCount + 1
278         action[actionCount] = {}
279         for w in string.gmatch(line, "%S+") do
280             table.insert(action[actionCount], tonumber(w))
281         end
282     end
283 end
```

此处要判断文件中的角度值是否超出有效范围。每一行最后一个数据为在完成该工作后停留的时间，单位100ms。现在版本的这个代码不是这样实现的，而是从开始这个动作的时候计时，只有超过这个时间才进行下一动作。

```
285 function openFile()  
286     -- body  
287     PATH=simFileDialog(sim_filedlg_type_load,"Search","", "", "text file", "txt")  
288     if(PATH ~= nil) then  
289         simExtCustomUI_insertComboboxItem(loadFileUI_index,41,0,PATH)  
290         ReadFile = simExtCustomUI_getComboboxItemText(loadFileUI_index,41,0)  
291         actionRead(ReadFile)  
292     end  
293 end  
294
```

此处加ELSE判断

```
299
300 function actionSimulate()
301     -- body
302     currentActionIndex = 1 --?????action??
303     actionSim = true
304 end
305
```

这个函数有严重BUG。在将actionSim设为真之前，必须对前提条件进行验证，比如数据是否读入，有没有错误？



```

364 if (sim_call_type==sim_childscriptcall_actuation) then --????????????????
365     if isPerformingAction then
366         if (simGetSimulationTime () - actionStartTime)*10 > actionDuration then
367             isPerformingAction = false
368         end
369     end
370 end
371
372 if not isPerformingAction then
373     if actionSim then
374         joint_command = action[currentActionIndex]
375         currentActionIndex = currentActionIndex + 1
376         if currentActionIndex > actionCount then
377             currentActionIndex = actionCount
378             actionSim = false
379         end
380         setValues(joint_command)
381         actionStartTime = simGetSimulationTime ()
382         actionDuration = joint_command[jointNum+1]
383         isPerformingAction = true
384         joint_position = {0, 0, 0, 0, 0, 0, 0, 0}
385         ceil = {0, 0, 0, 0, 0, 0, 0, 0}
386         -- get current position
387         for i=1,jointNum,1 do
388             joint_position[i] = simGetJointPosition(Joints_handle[i])*180/math.pi+90
389             joint_position[i],ceil[i] = math.modf(joint_position[i])
390         end
391         -- publish joint positions
392         if rosInterfacePresent then
393             simExtRosInterface_publish(publisher,{data=joint_position})
394         end
395         --delay(2000)
396     end
397 end
398 end

```

这个地方，正确的顺序是，首先判断是否所有关节都到达预期位置，具体实现不用写，但把接口留出，我之后补上。都到达位置后，再判断是否需要等待。