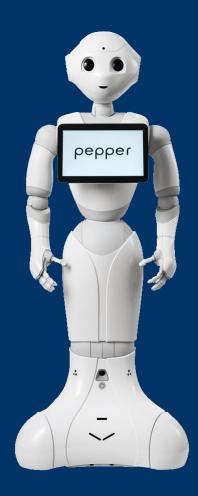


D0020E, Projekt i datateknik, Lp2-3, H22

Group 12

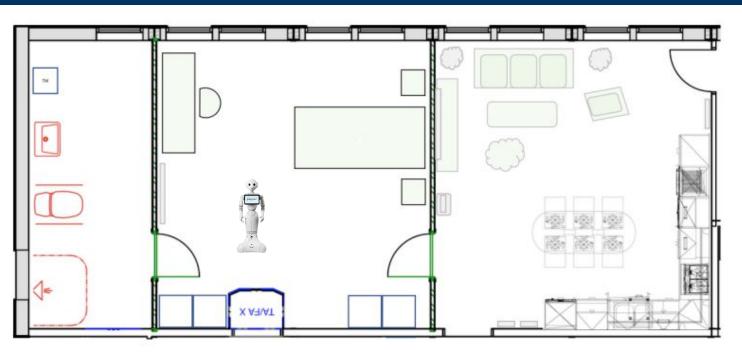
.		Personal Number
Student	Epost	
Furhoff, Hannes	hanfur-0@student.ltu.se	010929-xxxx
Kebede, Mebaselassie Kidane	mebkeb-0@student.ltu.se	990412-xxxx
Nord, Oscar	oscnor-9@student.ltu.se	950124-xxxx
Valdivia Vargas, Andrés	andval-6@student.ltu.se	971116-xxxx





Introduktion

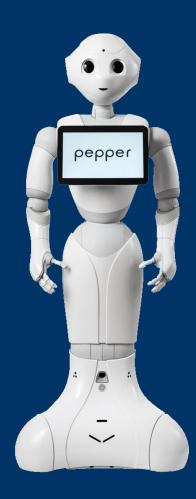
- Pepper
 - o Är en sociala "humanoid" robot
 - Optimerad för mänskliga interaktion genom
 - konversation
 - tablet
- Syfte
 - Kombinera Pepper med ett UWB-positioneringssystem med hjälp av Widefind kommunikation
- Målgrupp och användning
 - Vård-och omsorg
 - Större målgrupp Äldreomsorg





Figur 1: Layout of the the Human Health and Activity Laboratory

Figur 1 tagen från "Niklas exjobb rapport - Automated Control of a Telepresence Robot using UWB Positioning"



UWB

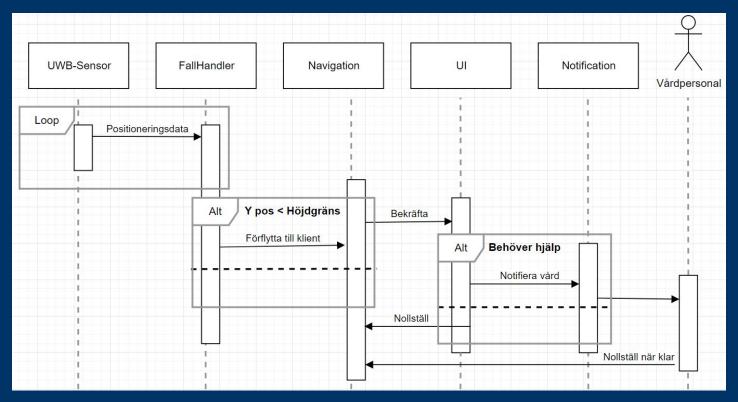


- UWB- Ultra wideband
 - Korta pulser över brett frekvensspektrum (>500MHz)
 - Funkar som ett positionssystem med hög noggrannhet
- Några användningsområden
 - Real-tids positionering
 - Dataöverföring

```
Python 3.6.2 Shell
*mgtt.py - C:\Users\Hannes\Desktop\mgtt.py (3.6.2)*
                                                                         File Edit Shell Debug Options Window Help
File Edit Format Run Options Window Help
  port paho.mqtt.client as mqtt
                                                                         BEACON 4B2A8EE2B9BAAAC0,0.2.7,1178,-6164,2222,4.15,-83.7,530774,INIT,SA
                                                                         BEACON C9FC024A285F78AF,0.2.7,660,5340,2500,4.14,-82.8,774295,MAN,SAT
                                                                         BEACON 543D85B1B2D91E29,0.2.7,280,-5044,280,4.05,-90.5,1389547,MAN,SAT
allowedPacketTypes = ["BEACON", "REPORT", "RANGE", "DIST"]
                                                                         BEACON 96E9E196C540FE15,0.2.7,5160,-10,350,4.01,-87.4,1359873,MAN,SAT
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.58,0.0,1368950,MAN,HUB
def parseString(s):
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.58,0.0,1369957,MAN,HUB
                                                                         BEACON 03FF5C0A2BFA3A9B.0.2.7,-10.280,2500,4.58,0.0,1370960,MAN,HUB
        s1 = s.split(":")
                                                                         BEACON 6881445FDC01E3F2,0.2.7,5050,5490,200,4.13,-82.9,2090773,MAN,SAT
        s2 = s1[1].split("*")
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.60,0.0,1371954,MAN,HUB
    except IndexError as e:
                                                                         BEACON 4B2A8EE2B9BAAAC0,0.2.7,1178,-6164,2222,4.15,-83.3,534780,INIT,SAT
       print("failed to parse, wrong string format: " + str(e))
                                                                         BEACON C9FC024A285F78AF,0.2.7,660,5340,2500,4.14,-83.0,778295,MAN,SAT
       51 = ["ERR"
                                                                         BEACON 543D85B1B2D91E29,0.2.7,280,-5044,280,4.05,-89.8,1393540,MAN,SAT
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.60,0.0,1372956,MAN,HUB
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.60,0.0,1373948,MAN,HUB
        "type": s1[0], "csv": s2[0], "unknown": s2[1]
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.60,0.0,1374952,MAN,HUB
                                                                         BEACON 6881445FDC01E3F2,0.2.7,5050,5490,200,4.13,-83.1,2094780,MAN,SAT
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.63,0.0,1375949,MAN,HUB
 ef cb(client, data, msg):
                                                                         BEACON 4B2A8EE2B9BAAAC0,0.2.7,1178,-6164,2222,4.15,-83.7,538780,INIT,SAT
   m = json.loads(msg.payload.decode())
                                                                         BEACON C9FC024A285F78AF, 0.2.7, 660, 5340, 2500, 4.14, -82.8, 782294, MAN, SAT
   data = parseString(m["message"])
                                                                         BEACON 543D85B1B2D91E29,0.2.7,280,-5044,280,4.05,-90.3,1397543,MAN,SAT
   if not (data["type"] in allowedPacketTypes): return
                                                                         BEACON 96E9E196C540FE15,0.2.7,5160,-10,350,4.00,-87.6,1367877,MAN,SAT
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.63,0.0,1376956,MAN,HUB
   print(data["type"] + " " + data["csv"])
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.63,0.0,1377963,MAN,HUB
                                                                         REPORT B30D92054F2BF398.0.2.7.1325.2428.-3759.0.0.-1.4.07.-89.33.513479
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.63,0.0,1378958,MAN,HUB
                                                                         BEACON 6881445FDC01E3F2,0.2.7,5050,5490,200,4.13,-82.5,2098777,MAN,SAT
client = mqtt.Client()
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.58,0.0,1379950,MAN,HUB
client.on_message = cb
                                                                         BEACON 482A8EE289BAAAC0,0.2.7,1178,-6164,2222,4.15,-83.3,542782,INIT,SAT
client.connect("130.240.74.55"
                                                                         BEACON C9FC024A285F78AF, 0.2.7, 660, 5340, 2500, 4.14, -85.7, 786301, MAN, SAT
client.subscribe("ltu-system/#"
                                                                         BEACON 543D85B1B2D91E29,0.2.7,280,-5044,280,4.04,-89.8,1401540,MAN,SAT
client.loop_forever()
                                                                         BEACON 96E9E196C540FE15,0.2.7,5160,-10,350,4.01,-87.3,1371878,MAN,SAT
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.58,0.0,1380953,MAN,HUB
 xstr = """BEACON:9691FE799F371A4C.0.2.7.5190.-
                                                                         BEACON 03FF5C0A2BFA3A9B.0.2.7.-10.280.2500.4.58.0.0.1381954.MAN.HUB
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.58,0.0,1382956,MAN,HUB
5820,2500,4.11,-
                                                                         BEACON 03FF5C0A2BFA3A9B,0.2.7,-10,280,2500,4.57,0.0,1383951,MAN,HUB
91.6,655829,MAN,SAT*996A"""
                                                                         BEACON 4B2A8EE2B9BAAAC0,0.2.7,1178,-6164,2222,4.15,-83.3,546776,INIT,SAT
```

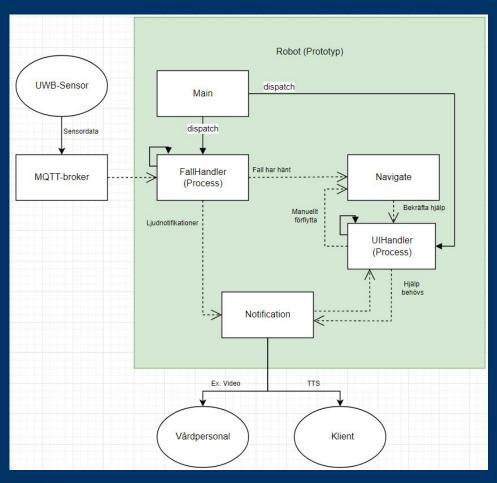


Dynamisk design: sekvens



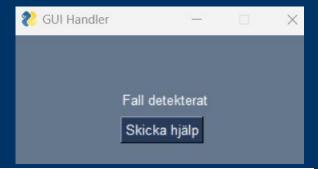


Statisk design: UML





GUI - Prototyp samt koncept design

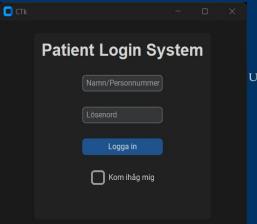






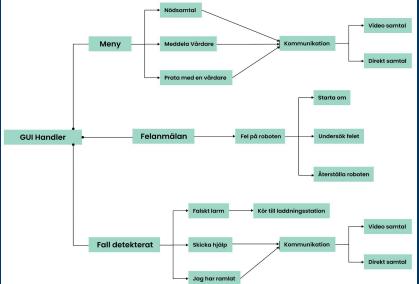












LULEĂ UNIVERSITY OF TECHNOLOGY





Kostnader & Övriga frågor







Källor

- Figur 1 tagen från "Niklas exjobb rapport Automated Control of a Telepresence Robot using UWB Positioning"
- Ultra-wideband https://en.wikipedia.org/wiki/Ultra-wideband
- Pepper officielt sida- https://www.aldebaran.com/en/pepper
- Niklas exjobb rapport <u>https://staff.www.ltu.se/~unicorn/h2al/DBv3-WideFind/Niklas_exjobb_rapport_update.pdf</u>

