



# Social Assistive Robotics for Autistic Children

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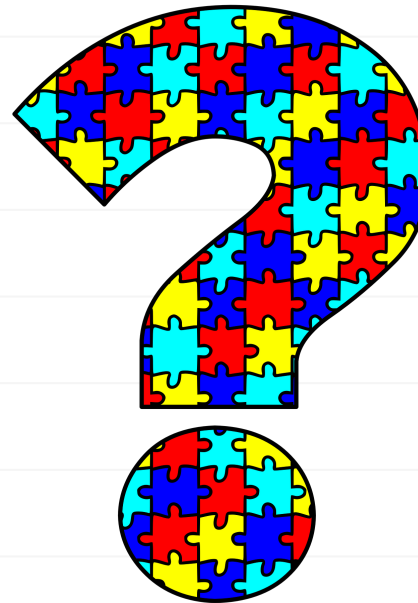


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# INTRODUCTION

**AUTISM SPECTRUM DISORDERS (ASD)** is a group of neurodevelopmental disorders mainly characterized by:

- deficits in social communication and interaction
- the presence of restricted and repetitive patterns of behaviors, interests or activities

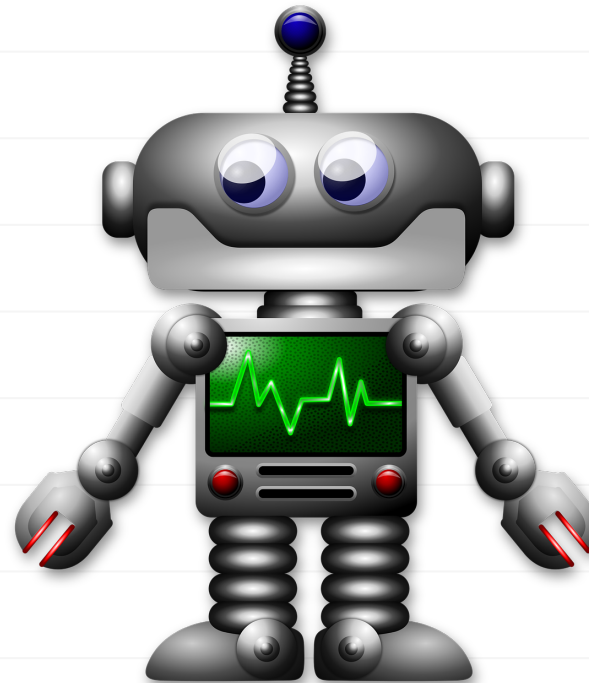


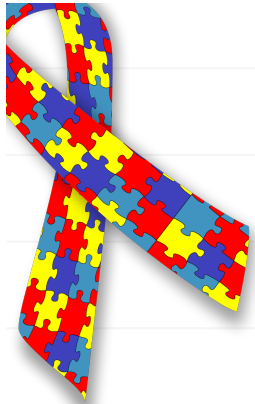
# INTRODUCTION

Social robotics to promote interaction and communication in ASD children and adolescents improving:

- Emotional recognition
- Reciprocity
- Joint attention
- Triadic interaction
- Visual contact

Although it is still variable among individuals, there seems to be a good disposition towards social robots and, in general, towards computer science by ASD people.





“ASD students are attracted to computer science because computers are logical and consistent”

—Ribu K.



# The Main Goal of the Project



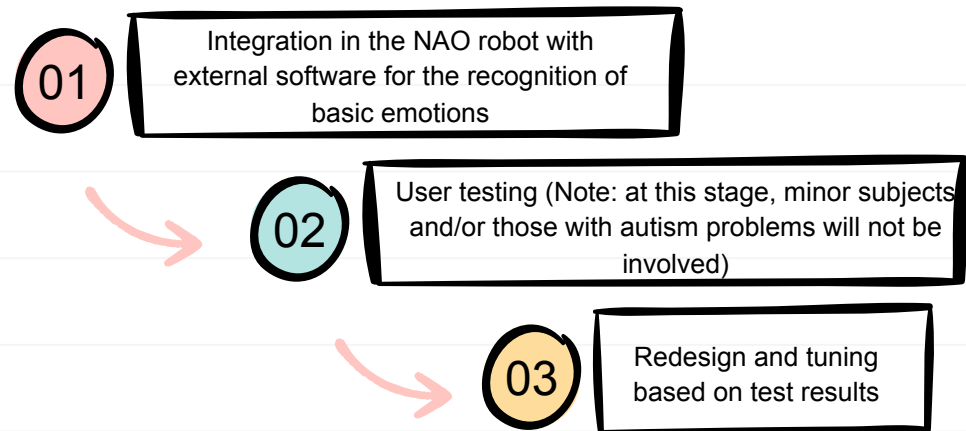
Test the exchanges and interactions of ASD children with social robots. Specifically, the robot is intended to be an extra clinical tool for the operators.

At the same time, robots may help operators in diagnosing and understanding autism.

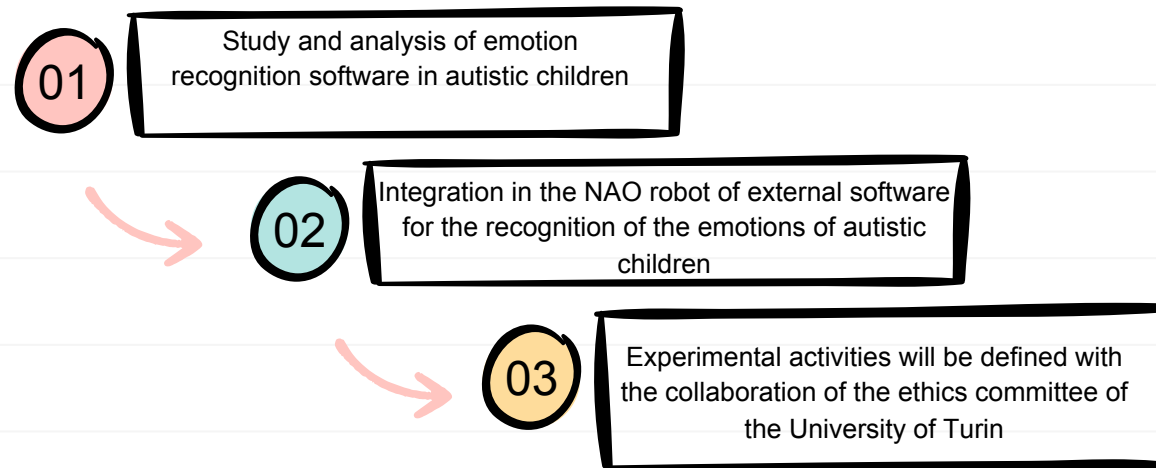
Indeed diagnosis may be improved through the use of both passive social cue measurement and interactions with a social robot to provide quantitative, objective measurements of social response



## Phase 1 - Basic emotions recognized by the robot

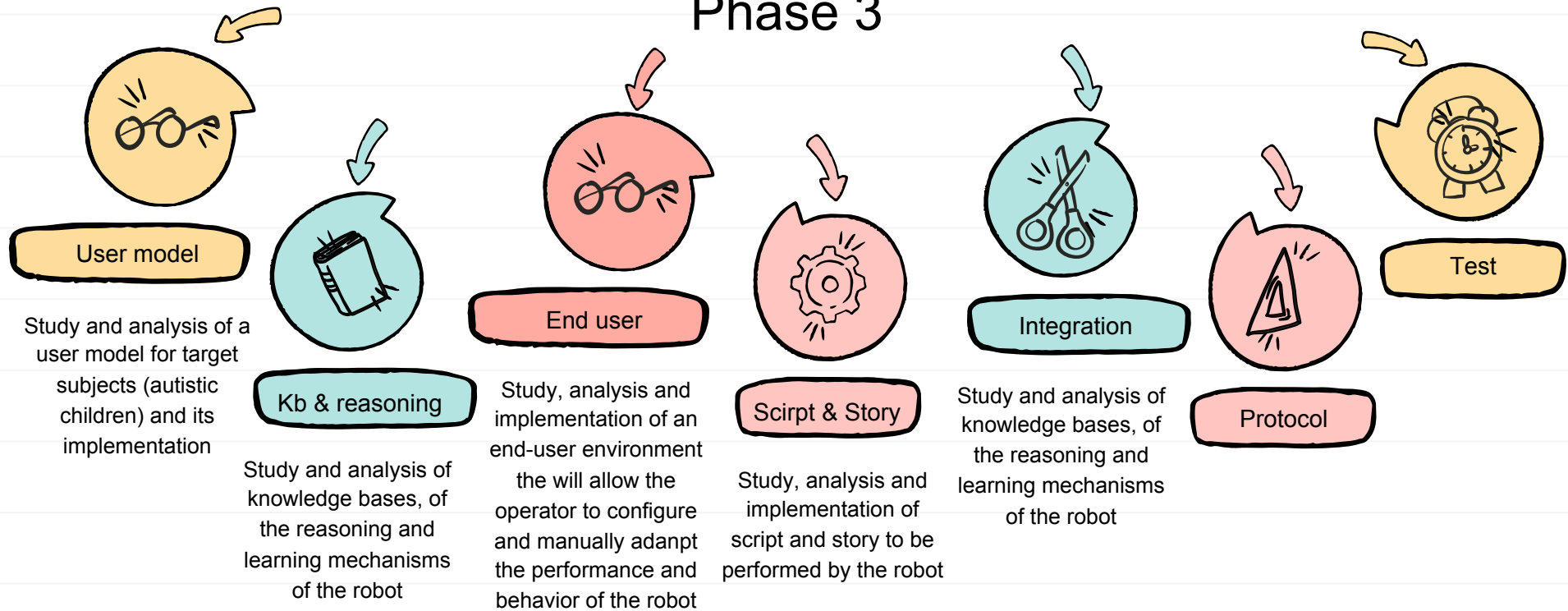


## Phase 2 - Basic emotions recognized by the robot





## Phase 3



## Initial Steps



PrimEmo

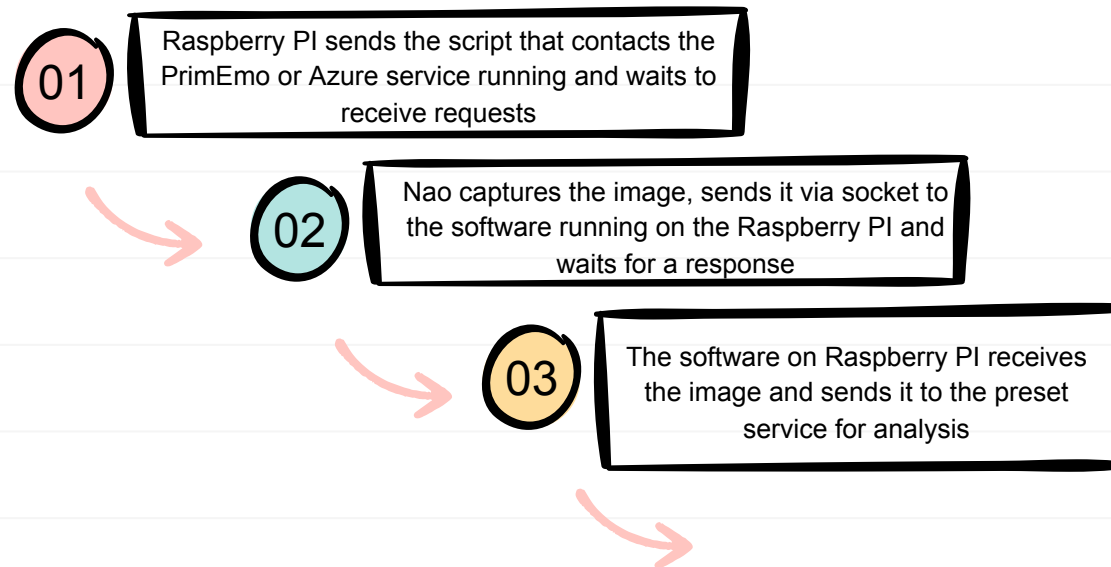
FER developed by  
the Computer  
Science Department  
of the University of  
Bari able to  
recognize the six  
basic emotions from  
Ekman



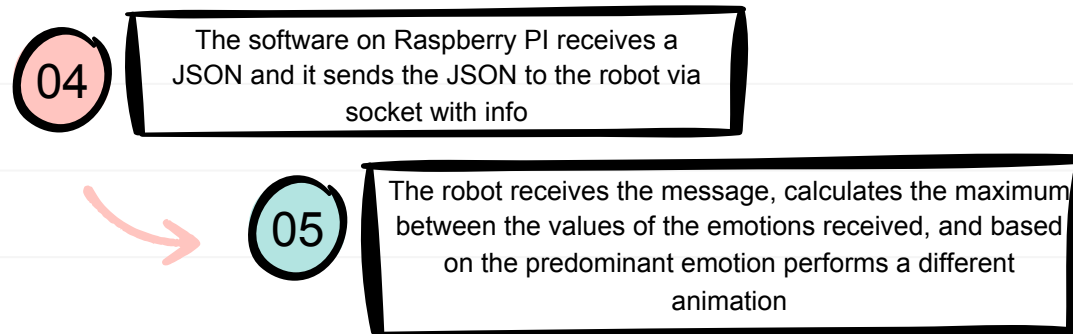
MS Azure

face-detect API from  
Microsoft Azure  
platform

## Final Architecture



## Final Architecture





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## Conclusion

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- The project has just started. The examples reported above witnesses our first implementation steps
  - We will integrated the 2 components in order to jointly perform the two related analyses and outputs
  - Test with neurotypical users in order to evaluate the performance of the described software components
  - The integration of a specific FER software for ASD children
- 
-

# THANKS!

Do you have any questions?  
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