

the wave shield to provide audio for NIG. The wave shield was then attached to the boom box to provide output audio (see figure 2).

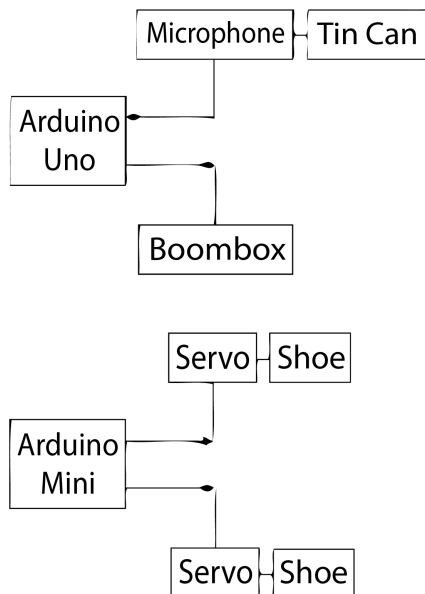


Fig. 2. System Architecture of the NIG.

We used a microphone to sense when a coin was thrown into the tin can. The microphone was directly attached to the tin can and it was easy to detect the loud noise of the coin hitting the tin can. This noise then triggered the playback of a random pick up line. The beer crate was tipped upside down to create a stand and two servos were attached between the slats so that they just protruded from the crate. The two servos were attached to the servos to give the illusion of someone standing on the crate. Because the Arduino Uno only contains a single clock an Arduino Mini was used to control the servos. A first attempt for random movement of the feet caused the Arduino Mini to freeze. Therefore a simple loop of preset movements was programmed into the Arduino Mini for the servos to follow. This was assembled, shown in figure 2, together so that as little of the electronics and the boom box were visible under the beer crate. To aid this illusion a cardboard sign was erected in front of the crate.

III. RESULTS

NIG was placed in front of a museum in Christchurch. This location typically attracts many people. Moreover, before entering and after their visit to the museum, people often wait for a short while to either discuss their next destination or to wait for other friends. We set up, watched and video recorded the NIG over the course of two hours. Like with most street performances, the majority of people was too busy to pay attention to NIG. However, a good number of people stopped and observed the NIG for a little while. They entered the "wonder phase" and had to decide whether they do or do not believe that there is a naked invisible guy standing on top of the box. The fact that so many people stopped and obviously wondered is a indication for the strength of the illusion. Many people took out their mobile phones or cameras and photographed the NIG.



Fig. 3. Naked Invisible Guy

At times people approached the NIG up close and waved their hands over the box as to test whether there really was anybody standing on it. Unfortunately, only very few people actually donated money to the installation. As a matter of fact, one passing homeless person actually gripped into the tin can and stole all the coins in it. Children were also interested in NIG and would use rocks or reuse coins to hear pick up lines. A short video summary of the NIG is available at <http://youtu.be/YRVndlr5aWQ>.

IV. CONCLUSIONS

It was the individuals that interacted with NIG that gave the most insight. The people that ran their hand through NIG showed that the experiment could cause people to question what they were seeing. The pure presence of slightly animated slippers in combination with context in which they appeared was sufficient to make some people believe that there actually might be a person standing on the box. One person even waved her arms over the box to test this idea. It is interesting that such little hints can already evoke a strong perception of anthropomorphism.

We would like to expand the NIG by adding a sensor onto the box that can sense movement on top of it to be able to react to people waving their hands over the NIG. We would then be able to play some dedicated utterances such as "That tickles!". This would again strengthen the illusion and enhance the interaction. The Invisible Naked Guy is a successful example of how a set of minimal clues can create a powerful anthropomorphic illusion.

V. CONCLUSION

The conclusion goes here.

REFERENCES

1. N. Matsumoto, H. Fujii, M. Goan, and M. Okada, "Minimal design strategy for embodied communication agents," *Robot and Human Interactive Communication*, 2005. ROMAN 2005. IEEE International Workshop on pp. 335-340.