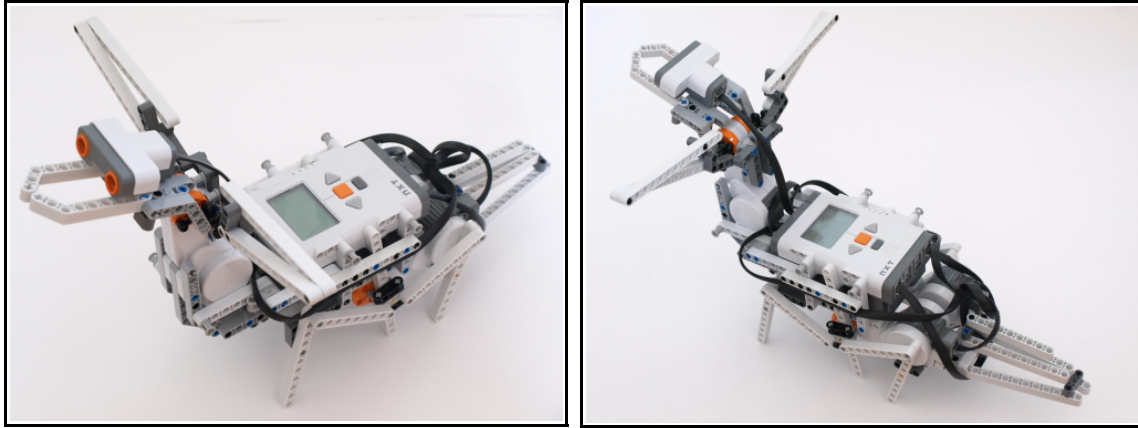


## BONUS MODEL FOR LEGO MINDSTORMS NXT 2.0 (8547) - MANTY



Figures 1, 2: Manty: The Shy Mantis

As part of the Junior MINDSTORMS Developer Program (JMDDP), I was given a parts list of the new MINDSTORMS set, late 2008. The group could use this list to help LEGO find bugs in their instruction manuals and software, even without actually owning a set.

Having sorted out the required parts from other LEGO sets, I directly started inventing robots with it. Manty was the first NXT 2.0 robot I made, and so far (August 2009) 7 robot designs followed. Because I did not have access to a real NXT 2.0 kit at first, I had to use some LEGO parts with the incorrect color. If you carefully compare the Manty from the instruction manual with the one photographed on the NXT 2.0 box, you will notice that some of the parts have a different color.

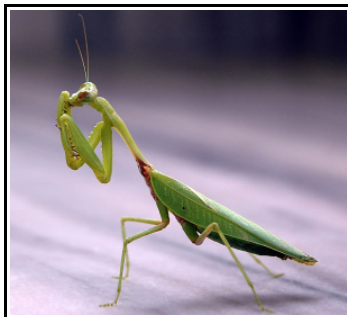


Figure 4: A praying mantis (courtesy wikipedia.org)

The reason for designing Manty was that I had built a walking robot back in 2007, as shown in Figure 3. I did not publish the model anywhere, so I restyled it to create Manty. The name for the robot came after designing it. It had six legs and a long neck, and the closest insect I could find (it's not that much like it) was a praying Mantis (Figure 4). And, because of its behavior (it's a shy robot), a logical name was Manty. After photographing the model, I took it apart to build something else. Quite recently, I was asked to document the robot with new pictures, a program and building instructions.

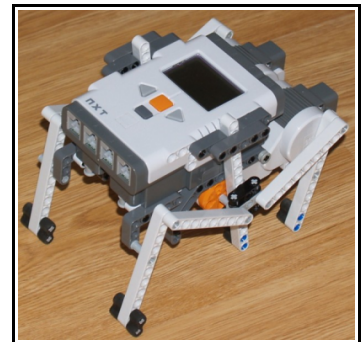


Figure 3: A walking robot design (2007)



Figure 5: A Touch Sensor for leg synchronization

Consequently, I had to rebuild it first. Having done that, I took some time to implement something new into the design. The original Manty was able to walk fine, but in order to walk, the builder would first have to position the legs correctly. If that wasn't done, Manty would just keep moving its legs while staying in the same place. To overcome this problem, I added a Touch Sensor which would allow the legs to synchronize by themselves. The both motors that are used for walking share the same Touch Sensor (Figure 5). You'll find out all about it as you build the robot.

I hope you enjoy building and programming the robot. I have put a lot of effort into making it easy to follow the building steps, so you should not have much trouble assembling it. Play well!

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