Sensor station (PVC version)

The following materials were used in constructing a prototype station.

- 1 PVC T-Pipe with a screwable lid (Ø 110 mm)
- 2 PVC end caps (Ø 110 mm)
- 1 PVC joint with two sleeves (Ø 110 mm)
- 2 cable glands (Ø 10-14 mm)
- 1 cable gland (Ø4-8 mm)
- Hammer
- Dish Soap
- Non toxic silicone
- Drill
- Centredrill (16 mm and 20 mm
- Sanding paper

Note that the diameters are what was used and not what is necessary for the project. All cable glands were chosen directly by measuring the diameter of each sensor. For a cable gland to work with a certain sensor, the sensor's diameter has to be within the minimum and the max size of said cable gland. The center drill could be substituted for a circular drill of equal size

Assembling the product

Apply dish soap to the inside of one end of the PVC joint and both end caps. Connect the joint to the T-pipe, with the soaped part facing inwards, through the opening which does not have a sealing ring. Insert one end cap in each opening.

Unscrew the lid and place it on the ground with the insides showing, mark out where the sensors are to be placed. Make sure to keep the markings within the PVC lid's sealing ring. Drill holes, which are big enough to allow the base of a cable gland to pass through, with a center- or circular drill. Smooth out any outward poking pieces of plastic left from the drill. If the hole is too small, use sandpaper to widen the holes.

Figure 1. Cable gland with marked base.

Unscrew the anything below the base of the cable gland and insert it to the appropriate hole. Refasten any unscrewed parts and insert said sensor.

If testing is to be conducted immediately after assembling the prototype, consider using a hammer to connect all the pipes instead of dish soap. Hammer on one of the end caps onto the PVC joint, then hammer the joint to the T-pipe.

Fill the pipe with packing material to minimise damage to the components kept inside of the pipes.

How to create an adaptation of the prototype with different sensors

Measure the diameter of the sensors using a pair of callipers. Note the diameter down as x. Ensure that the diameter measured does not have any larger sections both in front and behind it. Find a cable gland with a minimum (u) maximum (y) diameter so that $u < x < y$.

Remove anything that might be below the cable gland's base, measure the diameter with a pair of callipers. Acquire a center or circular drill with either the exact diameter or a slightly lower diameter.

If the sensors are larger than the T-pipe's side breadth, consider using a 2-way PVC pipe with a screwable lid on one side.