Hello, and welcome to our presentation for the course Embedded Systems. My name is Rolf Verschuuren, these are my colleges Stefan van den Berg and Wigger Boelens, and we will do the Final Presentation for group 16.

Over the course of the next, lets say 15 minutes, we will take you through the design process of our Sorting Machine. We will do this in three parts, Stefan will talk about the design of the software, after that, Wigger will explain how we implemented the software and made the machine run, but first, I will discuss the design of the plasticware.

We designed our machine at the hand of these seven priorities [List the priorities], we carefully chose these priorities using the project guide. Now, you may wonder why we have so many of them. The reason is simple: we believe that every design decision should be motivated using these priorities, for example: We had two different designs for the feeder, one that would translate the rotation from the engine into a pushing motion like a piston, and one that would just use the rotation itself to push the disks. The piston design took up more space, was more complex, and required more parts to build, because we had priorities to limit floor space, complexity and the amount of parts, we could justify a decision in favour of the rotating feeder.

Here you can see a drawing and a picture of the machine we ended up with. In the picture you can see the feeding mechanism I just discussed in the bottom right, this is where the disks are pushed onto the conveyor belt. The conveyor belt then takes them past a position detector and a colour detector to the sorting mechanism.

Our sorting mechanism consists of a small plate that can be moved up or down by an engine depending on the input from the colour detector. If a white disk is spotted it moves up to let the disk pass by, and since we cannot actually spot black disks the sorter just stays down and allows the conveyor belt to push the disk in to the tray on the side.

((Sadly, later, we found out that the PP2 could not actually keep three engines turned on constantly, this was something we tried to do in our design as the feeder and the conveyor should be turned on the entire time, and the sorter should turn on in bursts. Wigger will elaborate on this later on.))

This, in short, is how we designed our plasticware. Next up, my college Stefan will talk about the design process for the software that is needed to run this machine.