California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Kyle S.F. Boots

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

Pro C.E.S.S. Robot (Collects, Evaluates, Sorts, Stores)

Science Fair Use Only

J0605

Division

X **Junior (6-8)** _ **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)

1 - Applied Mechanics/ Structures & Mechanisms/ Manufacturing

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Objective: To design, construct, and program a robot that can be used in a factory to sort parts. Robots are used in factories for three main reasons:
1) They work without pay.
2) They never get tired.
3) They are fast and usually accurate.
Factories that manufacturer things use a lot of parts to construct products. I thought it would be easier if the parts were already sorted.

Materials and Methods: 1.) Research robots and their history.
2.) Design a robot that can tell the difference between 3 different sizes and 3 different colors of parts and sort them into one of 9 bins.
3.) Construct a robot using light sensors, gears, rods, blocks, motors, rotation sensors, touch sensors and a computer.
4. Write a computer program to operate the robot.
5. Document the problems and how I solved them.

Results: I constructed a robot that can select a part from a main bin and then determine its size and color. The robot then determines the correct storage bin for the part.

Conclusion: I am now aware of the steps and proceedures involved in desiging and programming a robot. I encountered problems with making my robot strong and sturdy and with some limitations of the programming software, but I think my design was successful.

Summary Statement (In one sentence, state what your project is about.)

To design a robot that can tell the difference between 3 different sizes and colors of parts and sort them into one of 9 bins.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

Mother helped me purchase parts, Father helped me type report.