

Topic :

1. Please examine how to cook rice without a rice cooker and understand the process including the physical principles contributing that. Based on that understanding, please draw its cooking process as a state-transition diagram of a machine model as described in Chap.6. Now think of cooking rice using a cooking equipment “Hangou” known as a cooking utensils, a mess tin, At this time, a user (i.e., a cook) cannot observe the phenomenon occurring inside of the equipment, so a cook has to infer that from observable evidences as well as to do various efforts to the equipment so that rice could be successfully cooked. Please draw a state transition diagram of a user model for this process of cooking rice using Hangou, and discuss the drawbacks of interfaces available therein.
2. Interface should be designed so that a user can understand what’s going on, what to do next and how to behave to attain his/her goal without difficulty.

Pick up the following examples of the interface:

1) Internet shopping interface (Online shopping interface) available at online shopping websites

2) Symbols showing the status of downloading and/or uploading big movie/picture files.

Discuss about what components are used to signify what in each interface clarifying the mapping relations between the physical realities and the cyber space representations (i.e., interface components).

Essay:

1. Firstly of all, a summary of cooking process in rice cooking with the “Hangou” is presented.

	Action	Criteria
Step 1	prepare materials and cooking equipment	Hangou, rice, water, firing source
Step 2	rinse the rice and drain the rice thoroughly	till the water is just slightly cloudy
Step 3	add certain water	a length of proximal phalanx higher than the rise
Step 4	soak the rice	for 20 to 30 mins
Step 5	put above the firing source	till lid starts to rattle
Step 6	reduce the heat or keep the heat	for 10 to 15 mins or till no rattle and sound
Step 7	turn off the heat and steam the rice	for 10 to 15 mins

Then according to the principle of the Work Domain Analysis, five components are required [1].

FP	The Functional Purpose of the system is the reason why the system exists.
AF	The Abstract Function is the criteria that can be used to judge whether the system is achieving its purposes.
GF	The Generalized Function is what functions are required to achieve the purpose of the work system.
PFn	The Physical Function is the systems functional capabilities and limitations.
PFo	The Physical Form is the resources of the system.

Back to the cooking issue, the enjoyment of a meal should be the Functional Purpose. As for the Physical Form, the Canteen Cooker kits from Bush Craft Inc. are selected.

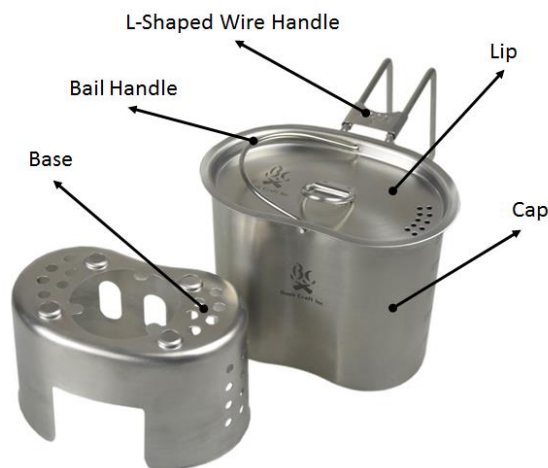
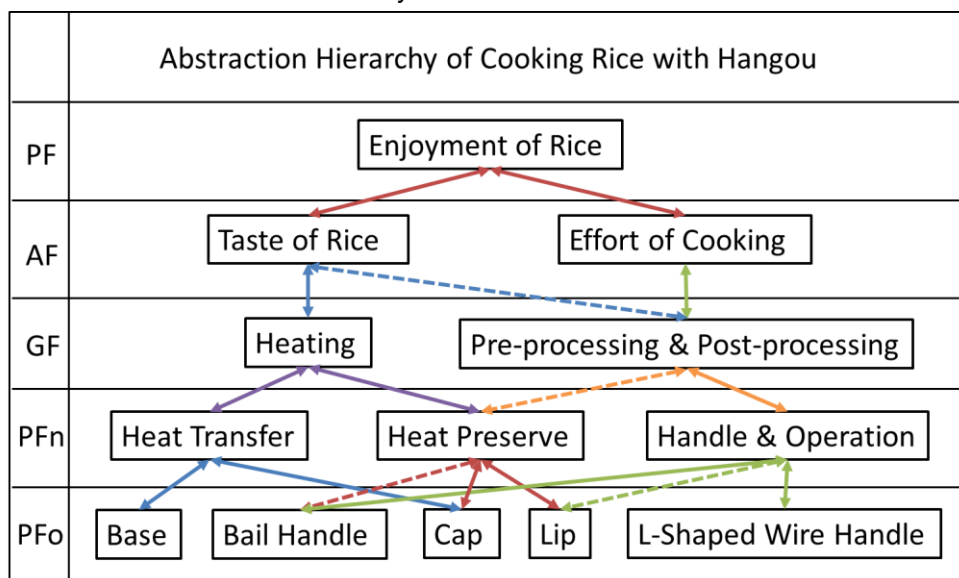


Fig. 1 The Canteen Cooker kits from Bush Craft Inc.

Then the final Abstraction Hierarchy in two-dimensional matrix is drawn as follow.



Based on that, some improvement designed to help to reduce the cognitive load of users in the Canteen Cooker kits are described.

	Criteria Improvement
Step 2	pour the water through those holes in lip
Step 3	add water with the calibration tails
Step 4	wait in accord with the water reduce with calibration tails
Step 5	till lid starts to rattle and appear bubbles through the holes
Step 6	till the bubbles dry out on the lip
Step 7	wait and smell

Finally, the state diagram of a machine model and the user model with “Hangou” are drawn as followed.

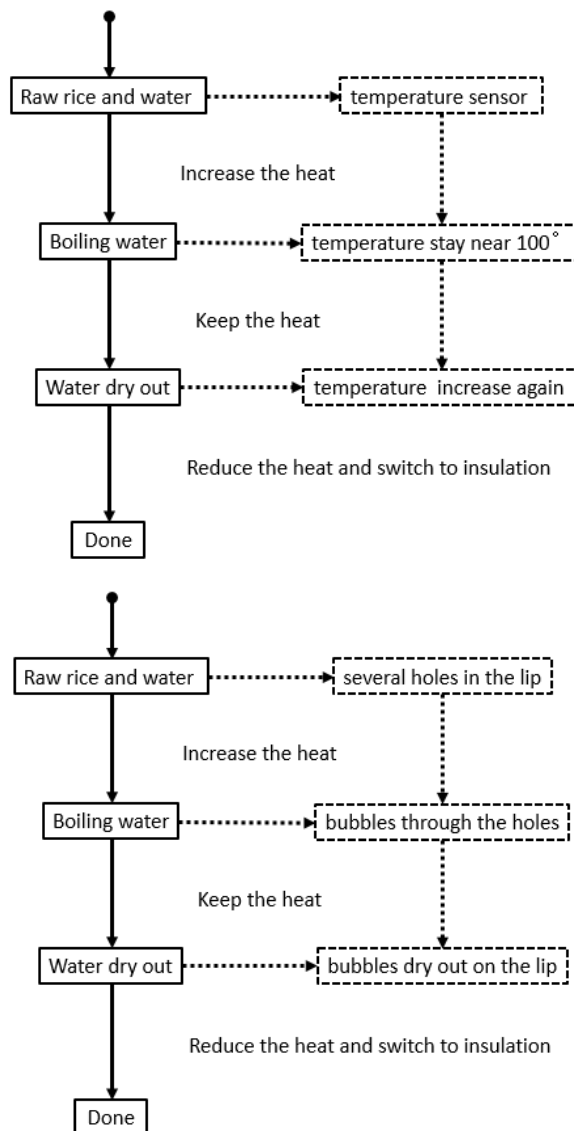


Fig.2 The state diagram of “Rice Cooker” machine model and “Hangou” user model

2. 1) The online shopping interface



Fig. 1 The main interface of the “Amazon” online shopping website



Fig.2 The interface after selecting “books” from category



Fig. 3 Some other interface components using in the search process

It has to be mentioned that such “Amazon” online shopping website includes a huge columns of functions and connections, in which only parts of them are presented here.

2) The download/upload interface

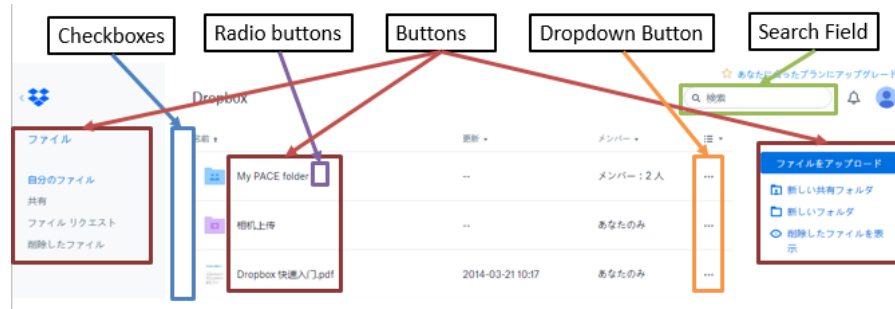


Fig. 4 The main interface of the “Dropbox” cloud storage website



Fig. 4 Different way to download

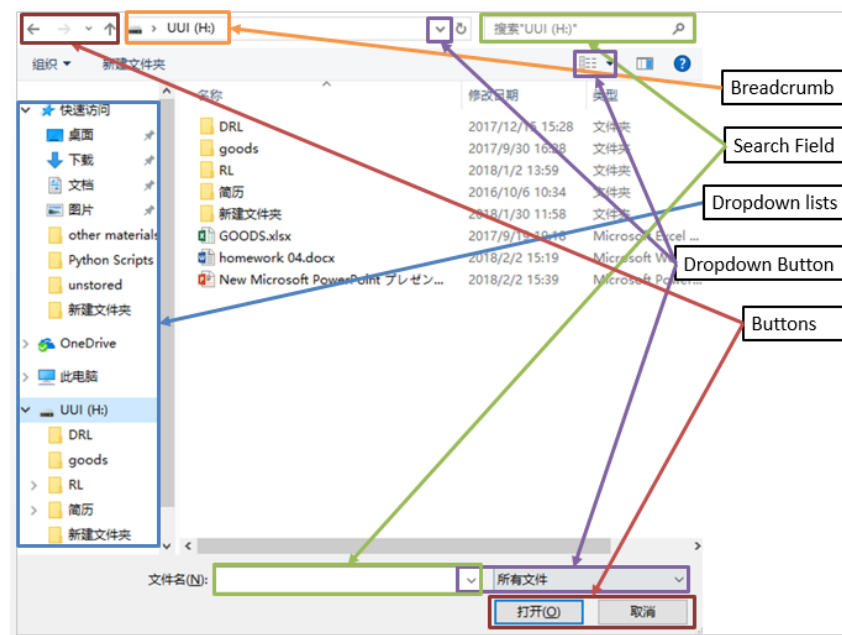


Fig.5 The interface after selecting “upload/download” button

3) Summary: in accord with the above analysis and other searched materials, we can briefly list up the interface components as followed ^[2]:

Input Controls	checkboxes, radio buttons, dropdown lists, list boxes, buttons, toggles, text fields, date field
Navigational Components	breadcrumb, slider, search field, pagination, slider, tags, icons
Informational Components	tooltips, icons, progress bar, notifications, message boxes, modal windows
Containers	accordion

Further, to discuss the function of those components, let's take the progress bar of online shopping websites and the radio buttons of upload/download websites as examples. A progress bar indicates where a user is as they advance through a series of steps in a process. Typically, progress bars are not clickable. So it is commonly used to tell the user which steps he/she belongs now together with the information about the history and future steps. And as for the radio buttons, it is used to allow users to select one item at a time so that the user can select which file he/she wants to upload/download through the interface.

Reference:

[1] Staffan Davidsson et al. Work Domain Analysis of Driving Information. IEA. 2009

[2] User Interface Elements, Usability.gov.com