interface 88 may include a visual media (e.g., screen showing information and/or capable of accepting information from a user). The user interface may include a program, application, and/or web browser or the like.

[0055] In some embodiments, the control system 80 for modifying, changing or controlling the ingot growth system 5 includes a control unit 82 that is different from the control unit used to produce a dynamic state chart ~~88~~504 described below. In other embodiments, the control system 80 for modifying, changing or controlling the ingot growth system 5 is part of the same system which produces the user interface 88 that includes the dynamic state chart (i.e., the same control unit 82 is used). The user interface 88 may include a development environment such as Microsoft Visual Studio, Oracle Java, Siemens Wincc, Wonderware Intouch or the like. The development environment is used to create the features of the interface. A program (e.g., runtime application) runs ~~of~~on the machine (e.g., computer or server) to provide the user interface 88.

[0056] In some embodiments, the user interface 88 includes or otherwise displays a dynamic state chart that is viewable by the user. For example, a dynamic state chart may provide a visual (e.g., graphical) representation of the plurality of growth parameters that change in response to changes in the growth parameters. An example dynamic state chart 504 is shown in Figure 6. The example dynamic state chart 504 is a circle state chart that is divided into sectors 518, 528, 538, 548. Each sector is associated with a different growth parameter. While four sectors are shown in Figure 6, the state chart 504 may include more or less sectors associated with an ingot

annular sector 530 may represents an acceptable range of the respective growth parameter.

[0059] In the illustrated embodiment, the dynamic state chart 504 also includes a target growth parameter visual 540. A target growth parameter visual 540 may be associated with each sector and represent the target value for the respective growth parameter. The target growth parameter visual 540 may be a third arc as shown in Figure 6.

[0060] The ingot growth parameters may be normalized over the radius of the circle state chart 504. For example, the minimum, maximum and target growth parameter arcs of each sector 518, 528, 538, 548 may be at the same respective radial positions (i.e., the same distance from the circle state chart center C_{504}) such that the minimum arcs 520 form a circle, the target growth parameter arcs 540 form a circle and the maximum arcs 525 form a circle). In other embodiments, the arcs of the sectors 518, 528, 538, 548 are at different radial positions.

[0061] In some embodiments, each sector 518, 528, 538, 548 changes in color and/or darkness in response to changes of the value of the respective ingot growth parameter. For example, sectors which are below or at the target value (shown by target arc 540) may be a first color (represented by a first stippling pattern in first, second and third sectors 518, 528, 538) and sectors which are above the target value may be a second color (represented by a second stippling pattern in the fourth sector 548). In some embodiments, the color or intensity of color may change within the sector. For example, the color within a