

ABSTRAKSI

Saat ini, teknologi informasi merupakan sebuah kesatuan yang tidak dapat dipisahkan dengan kelangsungan interaksi pada suatu perusahaan. Proses lelang tender pada PT. X yang selama ini masih berjalan secara manual pun membutuhkan suatu aplikasi yang dapat membantu mengolah, mengelola dan mengatur data-data dan proses lelang tender tersebut secara *online* dengan menggunakan teknologi yang handal. Selain itu dibutuhkan juga aplikasi yang dapat meringankan para peserta tender yang dalam hal ini adalah kontraktor untuk mengikuti proses lelang tender ini. Berdasarkan pada analisa tersebut, maka penulis membuat sebuah sistem *online* berbasis *web* menggunakan teknologi *email* dalam proses komunikasi yang dilakukan antara panitia tender dan kontraktor juga dengan teknologi *database* dapat membantu sistem dalam menyimpan, mengolah dan mengelola semua data yang *diinputkan* oleh *user*. Serta memberikan *Output* berupa *report* yang berkaitan dengan proses lelang tender yang diselenggarakan oleh PT. X.

Kata kunci : Lelang tender, *email*, *database*, *report*, berbasis *web*

ABSTRACT

Currently, inFormation technology is an inseparable unity with the continuity of interaction in a company. Tender auction process in PT. X that still run manually also requires an application that can help treat, manage and organize the data and the tender auction process online using a reliable technology. Also needed are also applications that can relieve the bidder in this case is the contractor to follow this tender auction process. Based on this analysis, the authors make an online web based system using email technology in the communication process perFormed between the tender committee and the contractor also with database technology to assist the system in the store, process and manage all data *Input* by the user. And provide *Output* report relating to the tender bidding process organized by PT. X.

Keywords: Auction tender, email, databases, reports, web-based

DAFTAR ISI

LEMBAR PENGESAHAN	1
PERNYATAAN PUBLIKASI LAPORAN PENELITIAN.....	2
PERNYATAAN ORISINALITAS LAPORAN PENELITIAN.....	3
KATA PENGANTAR	3
ABSTRAKSI	iii
ABSTRACT	iv
DAFTAR ISI.....	v
DAFTAR GAMBAR.....	viii
DAFTAR TABEL	xii
DAFTAR ISTILAH.....	xvii
BAB I PENDAHULUAN	1
1.1 Latar Belakang	1
1.2 Rumusan Masalah.....	2
1.3 Tujuan Penulisan.....	2
1.4 Ruang Lingkup Kajian	3
1.5 Sumber Data	4
1.6 Sistematika Penyajian	5
BAB II KAJIAN TEORI	6
2.1 Sistem Informasi.....	6
2.2 <i>Flowchart</i>	7
2.3 DFD (<i>Data Flow Diagram</i>)	9
2.4 Kamus Data (<i>Data Dictionary</i>)	10
2.5 PSPEC (<i>Process Specification</i>)	11
2.6 ERD (<i>Entity Relationship Diagram</i>).....	12
2.7 Sistem Tender dalam Perusahaan	13
2.8 ASP.NET	17
2.9 Visual Studio 2008.....	17
2.10 Bahasa Pemrograman VB.NET	18
2.11 ADO.NET	19
2.12 HTML	19
2.13 <i>Database</i>	20
2.14 Javascript	20
2.15 AJAX	21
2.16 Sistem Pendukung Keputusan (<i>Decision Support System</i>).....	21
2.17 Pengambilan Keputusan Kriteria Majemuk	27

2.17.1	<i>Weighting Method</i>	27
2.17.2	Sequential Elimination by Conjunctive Constraint.....	28
BAB III	ANALISA DAN RANCANGAN SISTEM	30
3.1	Proses Bisnis.....	30
3.2	ER-D (Entity Relationship – Diagram).....	35
3.2.1	Tabel Entity Relationship Diagram.....	37
3.3	DFD (Data Flow Diagram)	43
3.3.1	Data Flow Diagram (DFD) Level 1	45
3.3.2	Data Flow Diagram Level 2	46
3.3.2.1	DFD Level 2 Proses 2 Olah Data Kontraktor	46
3.3.2.2	DFD Level 2 Proses 3 Olah Data Berita.....	46
3.3.2.3	DFD Level 2 Proses 4 Olah Data Jadwal	47
3.3.2.4	DFD Level 2 Proses 5 Olah Data Paket Tender	47
3.3.2.5	DFD Level 2 Proses 6 Olah Data Panitia Tender	48
3.3.2.6	DFD Level 2 Proses 7 Olah Data Admin	48
3.3.2.7	DFD Level 2 Proses 8 Olah Data Bobot.....	49
3.3.2.8	DFD Level 2 Proses 9 Olah Data Nilai	50
3.3.2.9	DFD Level 2 Proses 13 Olah Data HPS.....	51
3.4	Kamus Data (<i>Data Dictionary</i>)	51
3.5	PSPEC (Process Spesification)	57
3.6	Rancangan <i>Form</i> Aplikasi.....	70
BAB IV	HASIL PENELITIAN	98
4.1	Home Guest	98
4.2	Log In	99
4.3	Tampilan Fitur Kontraktor	99
4.4	Tampilan Fitur Admin	106
4.5	Tampilan Fitur Panitia Tender.....	126
BAB V	PEMBAHASAN DAN UJI COBA HASIL PENELITIAN.....	136
5.1	Evaluasi Sistem.....	136
5.1.1	<i>BLACK BOX</i>	136
5.1.2	<i>TESTING</i>	165
5.2	<i>Error Handling</i>	179
5.2.1	Textbox Field Kosong.....	179
5.2.2	Format <i>Input</i> salah.....	180
BAB VI	SIMPULAN DAN SARAN	181
6.1	Simpulan	181
6.2	Saran.....	181

DAFTAR PUSTAKA.....	183
RIWAYAT HIDUP PENULIS	A

DAFTAR GAMBAR

Gambar 1 Simbol-simbol Flowchart (Jogiyanto Hartono, 1999, hal 795-805).....	8
Gambar 2 Tahap-tahap Proses Tender (http://digilib.petra.ac.id).....	14
Gambar 3 Konfigurasi SPK (Levin <i>et. al.</i> , 1995).....	23
Gambar 4 Fase Proses Pengambilan Keputusan (Suryadi, Kadarsah <i>et. al.</i> , 1998)	24
Gambar 5 Tingkat Teknologi SPK (Sprague, 1982)	25
Gambar 6 Lima Pihak yang Berperan dalam Pengembangan SPK (Suryadi, Kadarsah <i>et. al.</i> , 1998)	26
Gambar 7 Flowchart System (1)	32
Gambar 8 Flowchart System (2)	33
Gambar 9 Flowchart System (3)	34
Gambar 10 ER-Diagram	36
Gambar 11 Diagram Konteks / DFD Level 0	43
Gambar 12 DFD Level 1	45
Gambar 13 DFD Level 2 Proses 2	46
Gambar 14 DFD Level 2 Proses 3	46
Gambar 15 DFD Level 2 Proses 4	47
Gambar 16 DFD Level 2 Proses 5	47
Gambar 17 DFD Level 2 Proses 6	48
Gambar 18 DFD Level 2 Proses 7	48
Gambar 19 DFD Level 2 Proses 12	49
Gambar 20 DFD Level 2 Proses 11	50
Gambar 21 DFD Level 2 Proses 13	51
Gambar 22 Desain <i>Form</i> Home Guest.....	71
Gambar 23 Desain <i>Form</i> Login.....	72
Gambar 25 Desain <i>Form</i> Add Admin	73
Gambar 26 Desain <i>Form</i> Update Admin (1).....	73
Gambar 27 Desain <i>Form</i> Update Admin (2).....	74
Gambar 28 Desain <i>Form</i> View Admin.....	74
Gambar 29 Desain <i>Form</i> Add News	75
Gambar 30 Desain <i>Form</i> Update News (1).....	75
Gambar 31 Desain <i>Form</i> Update News (2).....	76

Gambar 32 Desain <i>Form View News</i>	76
Gambar 33 Desain <i>Form Add HPS</i>	77
Gambar 34 Desain <i>Form Update HPS (1)</i>	77
Gambar 35 Desain <i>Form Update HPS (2)</i>	77
Gambar 36 Desain <i>Form View HPS</i>	78
Gambar 37 Desain <i>Form Add Tender</i>	79
Gambar 38 Desain <i>Form Update Tender (1)</i>	80
Gambar 39 Desain <i>Form Update Tender (2)</i>	80
Gambar 40 Desain <i>Form View Tender</i>	81
Gambar 41 Desain <i>Form Add Kontraktor</i>	81
Gambar 42 Desain <i>Form Update Kontraktor (1)</i>	82
Gambar 43 Desain <i>Form Update Kontraktor (2)</i>	82
Gambar 44 Desain <i>Form View Kontraktor</i>	83
Gambar 45 Desain <i>Form Add Schedule</i>	83
Gambar 46 Desain <i>Form Update Schedule (1)</i>	84
Gambar 47 Desain <i>Form Update Schedule (2)</i>	84
Gambar 48 Desain <i>Form View Schedule</i>	85
Gambar 49 Desain <i>Form Add Panitia Tender</i>	85
Gambar 50 Desain <i>Form Update Panitia Tender (1)</i>	86
Gambar 51 Desain <i>Form Update Panitia Tender (2)</i>	86
Gambar 52 Desain <i>Form View Panitia Tender</i>	87
Gambar 53 Desain <i>Form Home Bidder</i>	87
Gambar 54 Desain <i>Form Bidding System</i>	88
Gambar 55 Desain <i>Form View List Tender</i>	88
Gambar 56 Desain <i>Form View Profile</i>	89
Gambar 57 Desain <i>Form Home Auctioner</i>	89
Gambar 58 Desain <i>Form Add Score Data Administrasi</i>	90
Gambar 59 Desain <i>Form Add Score Data Keuangan</i>	91
Gambar 60 Desain <i>Form Add Score Data Teknis</i>	91
Gambar 61 Desain <i>Form Add Value Data Administrasi</i>	92
Gambar 62 Desain <i>Form Add Value Data Keuangan</i>	92
Gambar 63 Desain <i>Form Add Value Data Teknis</i>	93
Gambar 64 Desain <i>Form Bidding System Auctioner</i>	94

Gambar 65 Desain <i>Form Report Score Card</i>	95
Gambar 66 Desain <i>Form Report Bidding System</i>	96
Gambar 67 Desain <i>Form Report Pemenang</i>	96
Gambar 68 Tampilan <i>Home Guest</i>	98
Gambar 69 Tampilan <i>Log In</i>	99
Gambar 70 Tampilan <i>Home Kontraktor</i>	100
Gambar 71 Tampilan Fitur <i>Bidding Bidder</i>	100
Gambar 72 Tampilan <i>Bidding System Bidder</i>	101
Gambar 73 Tampilan <i>View dari Home Kontraktor</i>	102
Gambar 74 Tampilan <i>View List Tender</i>	102
Gambar 75 Tampilan <i>Daftar Tender</i>	103
Gambar 76 Tampilan <i>Input Dokumen Administrasi</i>	104
Gambar 77 Tampilan <i>Input Dokumen Dokumen Keuangan</i>	104
Gambar 78 Tampilan <i>Input Dokumen Teknis</i>	105
Gambar 79 Tampilan <i>Chatbox</i>	106
Gambar 80 Tampilan <i>Home Admin</i>	107
Gambar 81 Tampilan Fitur <i>Add</i>	107
Gambar 82 Tampilan <i>Add Tender</i>	108
Gambar 83 Tampilan <i>Add News</i>	109
Gambar 84 Tampilan <i>Add Schedule</i>	109
Gambar 85 Tampilan <i>Add HPS</i>	110
Gambar 86 Tampilan <i>Add Admin</i>	111
Gambar 87 Tampilan <i>Add Auctioner</i>	111
Gambar 88 Tampilan <i>Add Vendor</i>	112
Gambar 89 Tampilan Fitur <i>Update</i>	113
Gambar 90 Tampilan <i>Update Tender (1)</i>	113
Gambar 91 Tampilan <i>Update Tender (2)</i>	114
Gambar 92 Tampilan <i>Update News (1)</i>	114
Gambar 93 Tampilan <i>Update News (2)</i>	115
Gambar 94 Tampilan <i>Update Schedule (1)</i>	116
Gambar 95 Tampilan <i>Update Schedule (2)</i>	116
Gambar 96 Tampilan <i>Update HPS (1)</i>	117
Gambar 97 Tampilan <i>Update HPS (2)</i>	117

Gambar 98 Tampilan <i>Update Admin</i> (1)	118
Gambar 99 Tampilan <i>Update Admin</i> (2)	118
Gambar 100 Tampilan <i>Update Auctioner</i> (1)	119
Gambar 101 Tampilan <i>Update Auctioner</i> (2)	119
Gambar 102 Tampilan <i>Update Vendor</i> (1)	120
Gambar 103 Tampilan <i>Update Vendor</i> (2)	120
Gambar 104 Tampilan <i>Fitur View</i>	121
Gambar 105 Tampilan <i>View Tender</i>	122
Gambar 106 Tampilan <i>View News</i>	122
Gambar 107 Tampilan <i>View Schedule</i>	123
Gambar 108 Tampilan <i>View HPS</i>	123
Gambar 109 Tampilan <i>View Admin</i>	124
Gambar 110 Tampilan <i>View Auctioner</i>	124
Gambar 111 Tampilan <i>View Vendor</i>	125
Gambar 112 Tampilan <i>View Log</i>	125
Gambar 113 Tampilan <i>Home Auctioner</i> (Panitia Tender)	126
Gambar 114 Tampilan <i>Fitur Add Value</i>	127
Gambar 115 Tampilan <i>Add Value Administration</i>	127
Gambar 116 Tampilan <i>Add Value Finance</i>	128
Gambar 117 Tampilan <i>Add Value Technical</i>	129
Gambar 118 Tampilan <i>Fitur Add Score</i>	129
Gambar 119 Tampilan <i>Add Score Administration</i>	130
Gambar 120 Tampilan <i>Add Score Finance</i>	131
Gambar 121 Tampilan <i>Add Score Technical</i>	131
Gambar 122 Tampilan <i>Bidding System Auctioner</i>	132
Gambar 123 Tampilan <i>Fitur View Auctioner</i>	133
Gambar 124 Tampilan <i>View Score Card</i>	133
Gambar 125 Tampilan <i>View Report Auctioner</i>	134
Gambar 126 Tampilan <i>View Pemenang</i>	134
Gambar 127 Tampilan <i>Email Upload Dokumen</i>	135
Gambar 128 Tampilan <i>Email Jadwal Bidding System</i>	135
Gambar 129 <i>Error Handling</i> Pada <i>field textbox</i> yang kosong	180
Gambar 130 <i>Error Handling</i> pada <i>Format Input</i> yang salah	180

DAFTAR TABEL

Tabel I Daftar Notasi-notasi Gambar Data Flow Diagram (DFD).....	9
Tabel II Daftar Notasi-notasi Gambar <i>Entity Relationship Diagram</i> (ERD)	12
Tabel III Contoh Perhitungan Bobot Pada Metode Weighting	28
Tabel IV Contoh Perhitungan Pada Metode Sequential Elimination by Conjunctive Constraints Bagian Pertama	28
Tabel V Contoh Perhitungan Pada Metode Sequential Elimination by Conjunctive Constraints Bagian Kedua	29
Tabel VI Atribut Tabel Admin	37
Tabel VII Atribut Tabel Berita.....	37
Tabel VIII Atribut Tabel PaketTender	37
Tabel IX Atribut Tabel Jadwal	37
Tabel X Atribut Tabel Log	38
Tabel XI Atribut Tabel Panitia Tender	38
Tabel XII Atribut Tabel Kontraktor.....	38
Tabel XIII Atribut Tabel DokumenAdmin	38
Tabel XIV Atribut Tabel DokumenKeuangan.....	38
Tabel XV Atribut Tabel DokumenTeknis	39
Tabel XVI Atribut Tabel Bobot1	39
Tabel XVII Atribut Tabel Bobot2	39
Tabel XVIII Atribut Tabel Bobot3.....	40
Tabel XIX Atribut Tabel Nilai1	40
Tabel XX Atribut Tabel Nilai2	40
Tabel XXI Atribut Tabel Nilai3	41
Tabel XXII Atribut Tabel HPS	41
Tabel XXIII Atribut Tabel ScoreCard.....	41
Tabel XXIV Atribut Tabel Auction.....	42
Tabel XXV Atribut Tabel PemenangTender	42
Tabel XXVI Atribut Tabel Rating	42
Tabel XXVII Kamus Data Kontraktor.....	51
Tabel XXVIII Kamus Data Berita.....	52
Tabel XXIX Kamus Data Jadwal	52

Tabel XXX Kamus Data Paket Tender.....	52
Tabel XXXI Kamus Data Panitia Tender	53
Tabel XXXII Kamus Data Admin.....	53
Tabel XXXIII Kamus Data Dokumen Admin.....	53
Tabel XXXIV Kamus Data Dokumen Keuangan	53
Tabel XXXV Kamus Data Dokumen Teknis	54
Tabel XXXVI Kamus Data Bobot 1	54
Tabel XXXVII Kamus Data Bobot 2	55
Tabel XXXVIII Kamus Data Bobot 3	55
Tabel XXXIX Kamus Data Nilai 1.....	55
Tabel XL Kamus Data Nilai 2.....	56
Tabel XLI Kamus Data Nilai 3.....	57
Tabel XLII Kamus Data HPS	57
Tabel XLIII PSPEC Proses 1	57
Tabel XLIV PSPEC Proses 8.....	58
Tabel XLV PSPEC Proses 9.....	58
Tabel XLVI PSPEC Proses 10.....	58
Tabel XLVII PSPEC Proses 2.1.....	59
Tabel XLVIII PSPEC Proses 2.2.....	59
Tabel XLIX PSPEC Proses 2.3.....	60
Tabel L PSPEC Proses 3.1.....	60
Tabel LI PSPEC Proses 3.2.....	60
Tabel LII PSPEC Proses 3.3.....	61
Tabel LIII PSPEC Proses 4.1.....	61
Tabel LIV PSPEC Proses 4.2	62
Tabel LV PSPEC Proses 4.3	62
Tabel LVI PSPEC Proses 5.1	62
Tabel LVII PSPEC Proses 5.2	63
Tabel LVIII PSPEC Proses 5.3	63
Tabel LIX PSPEC Proses 6.1	64
Tabel LX PSPEC Proses 6.2	64
Tabel LXI PSPEC Proses 6.3	65
Tabel LXII PSPEC Proses 7.1	65

Tabel LXIII PSPEC Proses 7.2	65
Tabel LXIV PSPEC Proses 7.3.....	66
Tabel LXV PSPEC Proses 12.1.....	66
Tabel LXVI PSPEC Proses 12.2.....	66
Tabel LXVII PSPEC Proses 12.3.....	67
Tabel LXVIII PSPEC Proses 11.1.....	67
Tabel LXIX PSPEC Proses 11.2.....	68
Tabel LXX PSPEC Proses 11.3.....	68
Tabel LXXI PSPEC Proses 11.4.....	68
Tabel LXXII PSPEC Proses 11.5.....	69
Tabel LXXIII PSPEC Proses 13.1.....	69
Tabel LXXIV PSPEC Proses 13.2.....	69
Tabel LXXV PSPEC Proses 13.3.....	70
Tabel LXXVI <i>Test Case Form Login</i>	136
Tabel LXXVII <i>Test Case Form Add Admin</i>	137
Tabel LXXVIII <i>Test Case Form Update Admin</i>	138
Tabel LXXIX <i>Test Case Add News</i>	138
Tabel LXXX <i>Test Case Update News</i>	139
Tabel LXXXI <i>Test Case Add HPS</i>	140
Tabel LXXXII <i>Test Case Update HPS</i>	141
Tabel LXXXIII <i>Test Case Add Schedule</i>	142
Tabel LXXXIV <i>Test Case Update Schedule</i>	142
Tabel LXXXV <i>Test Case Add Kontraktor</i>	143
Tabel LXXXVI <i>Test Case Update Kontraktor</i>	144
Tabel LXXXVII <i>Test Case Add Auctioner</i>	145
Tabel LXXXVIII <i>Test Case Update Auctioner</i>	146
Tabel LXXXIX <i>Test Case Add Paket</i>	147
Tabel XC <i>Test Case Update Paket</i>	148
Tabel XCI <i>Test Case View Admin</i>	149
Tabel XCII <i>Test Case View News</i>	150
Tabel XCIII <i>Test Case View HPS</i>	150
Tabel XCIV <i>Test Case View Schedule</i>	151
Tabel XCV <i>Test Case View Auctioner</i>	152

Tabel XCVI Test Case View Paket Tender	152
Tabel XCVII Test Case Add Score Administration	153
Tabel XCVIII Test Case Add Score Finance	154
Tabel XCIX Test Case Add Score Technical	155
Tabel C Test Case Add Value Administration	156
Tabel CI Test Case Add Value Finance	157
Tabel CII Test Case Add Value Technical	158
Tabel CIII Test Case Bidding Bidder	159
Tabel CIV Test Case Bidding Auctioner	160
Tabel CV Test Case Add Administration Document	161
Tabel CVI Test Case Add Finance Document	162
Tabel CVII Test Case Add Technical Document	163
Tabel CVIII Test Case View Pemenang Tender	164
Tabel CIX Testing Form Login	165
Tabel CX Testing Form Add Admin	166
Tabel CXI Testing Form Add News	166
Tabel CXII Testing Form Add HPS	167
Tabel CXIII Testing Form Add Schedule	167
Tabel CXIV Testing Form Add Kontraktor	168
Tabel CXV Testing Form Add Panitia Tender	169
Tabel CXVI Testing Form Add Paket Tender	169
Tabel CXVII Testing Form Update Admin	170
Tabel CXVIII Testing Form Update News	171
Tabel CXIX Testing Form Update HPS	171
Tabel CXX Testing Form Update Schedule	172
Tabel CXXI Testing Form Update Kontraktor	172
Tabel CXXII Testing Form Update Panitia Tender	173
Tabel CXXIII Testing Form Update Paket Tender	174
Tabel CXXIV Testing Form Add Score Administration	175
Tabel CXXV Testing Form Add Score Finance	176
Tabel CXXVI Testing Form Add Score Technical	177
Tabel CXXVII Testing Form Add Value Administration	177
Tabel CXXVIII Testing Form Add Value Finance	178

Tabel CXXIX <i>Testing Form Add Value Technical</i>	179
---	-----

DAFTAR LAMPIRAN

Identitas Diri.....	A.1
Riwayat Pendidikan	A.1
Pengalaman Kerja	A.1
Judul KP	A.2
Judul TA	A.2

DAFTAR ISTILAH

Auctioner = Panitia Tender/Penyelenggara Lelang Tender

Bidder = Peserta Lelang Tender/Kontraktor

Bidding system = Sistem Lelang/ Sistem Tawar Menawar

SIUJK = Surat Ijin Usaha Jasa Konstruksi

OE = *Owner Estimate*

HPS = Harga Perhitungan Sendiri

NPWP PKP = Nomor Pokok Wajib Pajak Pengusaha Kena Pajak

TDP = Tanda Daftar Perusahaan

SIUP = Surat Ijin Usaha